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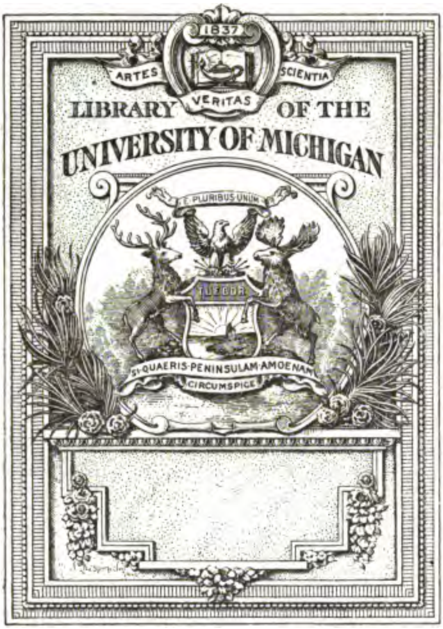

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CALENDAR

OF THE

UNIVERSITY OF MICHIGAN

1904-1905

ANN ARBOR, MICH.
PUBLISHED BY THE UNIVERSITY
1905

CONTENTS

PAGE

ANNOUNCEMENTS FOR 1905-1906 6

CALENDAR 7

BOARD OF REGENTS 8

MEMBERS OF THE FACULTIES AND OTHER OFFICERS 9

UNIVERSITY OF MICHIGAN 27
- The University and the State 27
- Organization of the University 27
- The Libraries 28
- The Astronomical Observatory 30
- The Museums 30
- The Laboratories 35
- The Hospitals 40
- Aids to Moral and Religious Culture 40
- Facilities for Physical Culture 41
- Oratorical Associations 42
- Other University Organizations 45
- Attendance and Discipline 46
- Relation of Students to Civil Authorities 46
- Fees and Expenses 47

DEPARTMENT OF LITERATURE, SCIENCE, AND THE ARTS 49
- Requirements for Admission of Undergraduates 49
- Requirements for Graduation 60
- Courses of Instruction 62
  - Combined Literary and Medical Course 124
  - Combined Literary and Law Course 124
  - Course in Higher Commercial Education 125
- Teacher's Diploma and Teacher's Certificate 126
- Fellowships, Scholarships, Loan Funds, and Prizes 127
- Fees and Expenses 132

GRADUATE SCHOOL 133
- Admission and Registration 133
- Courses of Instruction 134
- Requirements for Graduation 135
- Fees and Expenses 138

DEPARTMENT OF ENGINEERING 139
- Requirements for Admission 140
- The Work of the Department 147
- Facilities for Instruction 155
- The Engineering Society 161

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Courses of Instruction.......... 161
Sequence of Studies.......... 178
Requirements for Graduation.......... 180
Graduate Courses 183
Fellowship in Gas Engineering.......... 185
Fees and Expenses.......... 185
DEPARTMENT OF MEDICINE AND SURGERY.......... 187
Requirements for Admission.......... 187
Course of Instruction.......... 190
Requirements for Graduation.......... 197
Graduate Courses 197
Facilities for Instruction.......... 199
The University Hospital.......... 204
The New Medical Building.......... 205
Text-Books and Books of Reference.......... 205
Fees and Expenses.......... 206
DEPARTMENT OF LAW.......... 207
Requirements for Admission.......... 208
Class Rating 211
Courses of Instruction.......... 212
The Graduate Course.......... 219
Requirements for Graduation.......... 220
Libraries 221
Students' Organizations 222
Work in the Department of Literature, Science, and the Arts 222
Fees and Expenses.......... 224
SCHOOL OF PHARMACY.......... 225
Requirements for Admission.......... 226
Courses of Instruction.......... 229
Requirements for Graduation.......... 236
Graduate Courses 236
Fellowships 237
Botanical Garden 237
Library, Books of Reference, and Text-Books.......... 237
Fees and Expenses.......... 238
HOMOEOPATHIC MEDICAL COLLEGE.......... 239
Requirements for Admission.......... 239
Courses of Instruction.......... 241
Requirements for Graduation.......... 246
Graduate Courses 246
Facilities for Instruction.......... 247
The University Hospital (Homœopathic).......... 248
Fees and Expenses.......... 249
COLLEGE OF DENTAL SURGERY.......... 251
Requirements for Admission.......... 251
Assignment of Seats.......... 253

Course of Instruction 253
Requirements for Graduation 257
Graduate Course 257
Facilities for Instruction 258
Text-Books 259
Fees and Expenses 260
SUMMER SESSION 261
Admission and Registration 261
Fees and Expenses 262
Courses of Instruction 262
Examinations 273
Credit toward Graduation 273
LIST OF GRADUATES OF 1904 275
FACULTIES AND STUDENTS 287
Department of Literature, Science, and the Arts 287
Department of Engineering 324
Department of Medicine and Surgery 348
Department of Law 360
School of Pharmacy 382
Homœopathic Medical College 385
College of Dental Surgery 388
Summer Session of 1904 392
SUMMARY OF STUDENTS 406
SUMMARY BY STATES AND BY DEPARTMENTS 408
OFFICERS OF THE ALUMNI ASSOCIATION 410
INDEX OF UNIVERSITY OFFICERS 411
GENERAL INDEX 415

ANNOUNCEMENTS

1905–1906

1905.

Jan.	10.	University Exercises resumed after Holiday Vacation.
Feb.	10.	(Evening.) First Semester Closes.
Feb.	10, 11.	*Examinations for Admission to the Department of Literature, Science, and the Arts, and to the Department of Engineering.*
Feb.	13.	Second Semester Begins.
April	14.	(Evening.) Recess begins, ending April 24 (evening).
June	18.	*Baccalaureate Address.*
June	19, 20.	*Class Day Exercises in the several Departments.*
June	21.	*Alumni Day.*
June	22.	Commencement. The Commencement Oration is to be delivered by Henry S. Pritchett, Ph.D., LL.D., President of the Massachusetts Institute of Technology.
		Summer Vacation, June 23—Sept. 25.
June	26-Aug. 4.	Summer Session in the Department of Literature, Science, and the Arts, the Department of Engineering, and the Department of Medicine and Surgery.
June	26-Aug. 18.	Summer Session in the Department of Law.
Sept.	20-23.	*Examination for Admission to the Department of Literature, Science, and the Arts, to the Department of Engineering, and to the School of Pharmacy.*
Sept.	21, 22, 23, 25.	*Examination for Admission to the Department of Law.*
Sept.	23, 25.	*Examination for Admission to the Department of Medicine and Surgery.*
Sept.	25.	*Examination for Admission to the Homoeopathic Medical College, and to the College of Dental Surgery.*
Sept.	26.	First Semester Begins in all Departments of the University.
Nov.	—.	Thanksgiving Recess of three days, beginning Tuesday evening, in all Departments of the University.
Dec.	21.	(Evening.) Holiday Vacation begins in all Departments.

1906.

Jan.	9.	Exercises resumed.
Feb.	9,	(Evening.) First Semester Closes.
Feb.	9, 10.	*Examination for Admission to the Department of Literature, Science, and the Arts.*
Feb.	12.	Second Semester Begins.
April	13.	(Evening.) Recess begins, ending April 23 (evening).
June	21.	Commencement.

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JAMES WATERMAN GLOVER, PH.D., *Assistant Professor of Mathematics.* 1312 Geddes Avenue.

ALBERT EMERSON GREENE, PH.B., B.S., *Assistant Professor of Civil Engineering.* 415 East William Street.

WILLIAM HENRY WAIT, PH.D., *Assistant Professor of Modern Languages, in Charge of Modern Language Work in the Department of Engineering.* 904 Olivia Avenue.

\ LOUIS A. STRAUSS, PH.D., *Assistant Professor of English.* 900 Lincoln Avenue.

HERBERT JAY GOULDING, B.S., *Assistant Professor of Descriptive Geometry and Drawing and Secretary of the Department of Engineering.* 904 Lincoln Avenue.

ALFRED HOLMES WHITE, A.B., B.S., *Assistant Professor of Chemical Technology.* 1017 Hill Street.

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*Absent on leave.

ARTHUR LYON CROSS, PH.D., *Assistant Professor of History.* 610 South State Street.

JOHN ROMAIN ROOD, LL.B., *Assistant Professor of Law.* 1133 Forest Avenue.

EDSON READ SUNDERLAND, A.M., LL.B., *Assistant Professor of Law.* 906 East Huron Street.

JONATHAN AUGUSTUS CHARLES HILDNER, PH.D., *Assistant Professor of German.* 1026 Greenwood Avenue.

GEORGE AUGUSTUS HULETT, PH.D., *Assistant Professor of Physical Chemistry.* 1130 Oakland Avenue.

WALTER ROBERT PARKER, B.S., M.D., *Clinical Professor of Ophthalmology in the Department of Medicine and Surgery.* 311 South State Street.

R. BISHOP CANFIELD, A.B., M.D., *Clinical Professor of Otology, Rhinology, and Laryngology in the Department of Medicine and Surgery.* 1034 East Huron Street.

CYRENUS GARRITT DARLING, M.D., *Clinical Professor of Surgery, Lecturer on Genito-urinary and Minor Surgery, and Demonstrator of Surgery in the Department of Medicine and Surgery; Lecturer on Oral Pathology and Surgery and Acting Dean of the College of Dental Surgery.* 620 East University Avenue.

WILLIAM FLEMING BREAKEY, M.D., *Lecturer on Dermatology and Syphilology.* 402 East Huron Street.

GEORGE OSWIN HIGLEY, M.S., *Instructor in General Chemistry.* 928 Olivia Avenue.

SIMON MENNO YUTZY, M.D., *Instructor in Osteology and Demonstrator of Anatomy.* 727 East University Avenue.

*DAVID MARTIN LICHTY, M.S., *Instructor in General Chemistry.*

CLARENCE LINTON MEADER, PH.D., *Instructor in Latin.* 724 East University Avenue.

WARREN WASHBURN FLORER, PH.D., *Instructor in German.* 1114 Prospect Street.

JOHN STRONG PERRY TATLOCK, PH.D., *Instructor in English.* 701 South Ingalls Street.

JAMES BARKLEY POLLOCK, SC.D., *Instructor in Botany.* 922 Church Street.

EWALD BOUCKE, PHD., *Instructor in German.* 901 Oakland Avenue.

WILLIAM HENRY BUTTS,.A.M., *Instructor in Mathematics.* 919 Oakland Avenue.

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*Absent on leave.

HUGO PAUL THIEME, PH.D., *Instructor in French.*
1209 East University Avenue.

WALTER HENRY BLOME, B.S., *Acting Instructor in Pharmacy.* 523 West Liberty Street.

ARTHUR WHITMORE SMITH, PH.D., *Instructor in Physics.*
1008 Michigan Avenue.

HARRISON McALLISTER RANDALL, PH.D., *Instructor in Physics.* 1220 Prospect Street.

FREDERICK LEVY DUNLAP, Sc.D., *Instructor in Analytical Chemistry.* 702 East University Avenue.

SAMUEL JACKSON HOLMES, PH.D., *Instructor in Zoology.*
523 Packard Street.

*COLMAN DUDLEY FRANK, A.M., *Instructor in French and Spanish.*

JOSEPH MORRIS THOMAS, A.M., *Instructor in Rhetoric.*
1201 East University Avenue.

CARL EDGAR EGGERT, PH.D., *Instructor in German.*
934 Greenwood Avenue.

DUANE REED STUART, PH.D., *Instructor in Greek and Latin.* 513 Elm Street.

RAYMOND PEARL, PH.D., *Instructor in Zoology.*
1109 East University Avenue.

FREDERICK CHARLES WILSON, B.S., *Instructor in Descriptive Geometry and Drawing.* 912 Forest Avenue.

ARCHIE BURTON PIERCE, PH.D., *Instructor in Mathematics.* 403 East Washington Street.

THEODORE RUDOLPH RUNNING, PH.D., *Instructor in Mathematics.* 1108 Prospect Street.

JAMES EDWIN DUERDEN, PH.D., *Instructor in Zoology.*
621 South State Street.

LOUIS CHARLES KARPINSKI, PH.D., *Instructor in Mathematics.* 1104 Prospect Street.

LYMAN FOOTE MOREHOUSE, A.M., *Instructor in Physics.*
923 Greenwood Avenue.

PETER FIELD, PH.D., *Instructor in Mathematics.*
935 Greenwood Avenue.

EDWARD BRIND ESCOTT, M.S., *Instructor in Mathematics.*
718 Monroe Street.

WILLIAM MARSHALL, M.S., *Instructor in Mathematics.*
1015 Vaughn Street.

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*Absent on leave.

CHARLES BAIRD, A.B., LL.B., *Director of Outdoor Athletics.* 910 Olivia Avenue.

FRED PARKER JORDAN, A.B., *Assistant in the General Library in Charge of Catalogue.* 923 Olivia Avenue.

BYRON ALFRED FINNEY, A.B., *Assistant in the General Library in Charge of Circulation.* 849 Tappan Street.

HENRY ORMAL SEVERANCE, A.M., *Assistant in the General Library.* 602 East Washington Street.

MYRA BEACH JORDAN, *Women's Dean in the Department of Literature, Science, and the Arts.* 923 Olivia Avenue.

GEORGE AUGUSTUS MAY, M.D., *Physical Examiner in the Waterman Gymnasium.* 611 East William Street.

HAMILTON REEVE, *Superintendent of Buildings and Grounds.* 610 South State Street.

Non-Resident Instructor in Summer Session of 1904

CLAYTON TRYON TEETZEL, LL.B., *Instructor in Physical Training.* Ypsilanti.

Non-Resident Lecturers on Special Topics for 1904–1905

JOHN BERTRAND CLAYBERG, LL.B., *Lecturer on Mining Law and on Irrigation Law.* Helena, Mont.

MELVILLE MADISON BIGELOW, PH.D., LL.B., LL.D., *Lecturer on Insurance.* Cambridge, Mass.

HENRY HARRISON SWAN, LL.D., *Lecturer on Admiralty.* Detroit.

OSCAR RUSSELL LONG, M.D., *Lecturer on Mental Diseases (in the Homoeopathic Medical College).* Ionia.

FRANK FREMONT REED, A.B., *Lecturer on Copyright Law and the Law of Trademarks.* Chicago, Ill.

ALBERT HENRY WALKER, LL.B., *Lecturer on Patent Law.* New York, N. Y.

WILLIAM MILAN EDWARDS, M.D., *Lecturer on Insanity (in the Department of Medicine and Surgery).* Kalamazoo.

EDMUND ADOLPH CHRISTIAN, A.B., M.D., *Lecturer on Insanity (in the Department of Medicine and Surgery).* Pontiac.

JAMES DECKER MUNSON, M.D., A.M., *Lecturer on Insanity (in the Department of Medicine and Surgery).* Traverse City.

HENRY BROOKS BAKER, M.D., A.M., *Lecturer on the Administration of Health Laws.* Lansing.

WILLIAM AUSTIN POLGLASE, M.D., *Lecturer on Nervous Diseases (in the Homoeopathic Medical College).* Lapeer.

DALLAS BOUDEMAN, M.S., *Lecturer on Statute Law.*
Kalamazoo.

GEORGE LAFAYETTE CHAMBERLAIN, M.D., *Lecturer on Insanity (in the Department of Medicine and Surgery).*
Newberry.

HARLOW PALMER DAVOCK, C.E., M.S., *Lecturer on Practice in Bankruptcy.* Detroit.

CRESSY LIVINGSTON WILBUR, PH.M., M.D., *Lecturer on Vital Statistics (in the Department of Medicine and Surgery).* Lansing.

ELIJAH MARK HOUGHTON, PH.C., M.D., *Lecturer on the Preparation of Medicines (in the Department of Medicine and Surgery).* Detroit.

FREDERICK JACKSON TURNER, PH.D., *Lecturer on History.* Madison, Wis.

JOHN FRANKLIN JAMESON, PH.D., LL.D., *Lecturer on History.* Chicago, Ill.

ANDREW CUNNINGHAM McLAUGHLIN, A.M., LL.B., *Lecturer on History.* Washington, D. C.

ROLLIN HOWARD STEVENS, M.D., *Lecturer on Dermatology (in the Homoeopathic Medical College).* Detroit.

WILLIAM TITSWORTH REEVES, D.D.S., *Lecturer on Porcelain Inlay Filling.* Chicago, Ill.

EDWARD BARTLETT SPALDING, D.D.S., *Lecturer on Porcelain Crown Work.* Detroit.

ROBERT MILTON RICHARDS, M.D., *Lecturer on Renal Diseases (in the Homoeopathic Medical College).* Detroit.

MILTON TATE WATSON, D.D.S., *Lecturer on Orthodontia.*
Detroit.

ALFRED CHURCH LANE, PH.D., *Lecturer on Economic Geology.* Lansing.

CARL COPELAND PARSONS, A.B., *Lecturer on Accounting.*
Chicago, Ill.

GEORGE WATSON ROBERTS, PH.B., M.D., *Lecturer on Clinical Surgery (in the Homoeopathic Medical College).*
New York, N. Y.

Other Appointments for 1904–1905

THEODORE WESLEY KOCH, A.M., *Assistant Librarian.*
620 South State Street.

CLAUDE HALSTEAD VAN TYNE, PH.D., *Assistant Professor of History.* 1105 East University Avenue.

WILLIAM SYLVESTER HAZELTON, A.B., B.S., *Assistant Professor of Mechanical Engineering.* 1003 Packard Street.

EDWARD HENRY KRAUS, PH.D., *Assistant Professor of Mineralogy.* 548 Thompson Street.

HELEN ELIZABETH BROOKS, M.D., *Director of Physical Training in the Barbour Gymnasium.* 1024 Hill Street.

JOHN WILLIAM DWYER, LL.M., *Instructor in Law.* 415 North Thayer Street.

BENJAMIN FRANKLIN BAILEY, A.M., *Instructor in Electrical Engineering.* 319 East William Street.

JOHN DIETERLE, A.M., *Instructor in German.* 221 West Liberty Street.

ALICE LOUISE HUNT, *Instructor in Drawing.* 1328 Washtenaw Avenue.

CARL FREDERICK AUGUSTUS LANGE, PH.D., *Instructor in German.* 1020 Michigan Avenue.

VERNON JUSTIN WILLEY, A.M., *Instructor in Electrotherapeutics.* 308 East Madison Street.

CHARLES ALBERT DAVIS, A.M., *Instructor in Forestry.* 303 South Division Street.

ROYAL ALBERT ABBOTT, A.M., *Instructor in Rhetoric.* 1817 Geddes Avenue.

CLARENCE BURTON MORRILL, A.M., *Instructor in Rhetoric.* 1827 Hill Street.

JOHN WILLIAM SCHOLL, A.M., *Instructor in German.* 1017 Vaughn Street.

GEORGE PLUMER BURNS, PH.D., *Instructor in Botany.* 117 North State Street.

LYDIA MARIA DEWITT, B.S., M.D., *Instructor in Histology.* 925 North University Avenue.

WILLIAM GABB SMEATON, A.B., *Instructor in Chemical Engineering.* 1009 Michigan Avenue.

ROBERT BROWN HOWELL, D.D.S., *Instructor in Comparative Anatomy and Crown and Bridge Work.* 709 North University Avenue.

CHARLES CHRISTOPHER ADAMS, M.S., *Curator of the Museum.* 715 Twelfth Street.

ROY ROMANZO PECK, A.M., *Instructor in French.* 608 East Madison Street.

CARL CLIFTON TARBOX, A.B., *Instructor in Rhetoric.* 534 South State Street.

GEORGE MILLER BARTLETT, B.S., *Instructor in Descriptive Geometry and Drawing.* 216 South Fifth Avenue.

GUSTAV STEIN, LL.B., *Instructor in Law.* 510 East Catherine Street.

ROGER SYLVESTER MORRIS, A.B., M.D., *Instructor in Internal Medicine and Demonstrator of Clinical Medicine in the Department of Medicine and Surgery.* 504 South State Street.

HARRISON STANDISH SMALLEY, PH.D., *Instructor in Political Economy.* 820 East Kingsley Street.

MARCUS LLEWELLYN WARD, D.D.S., *Instructor in Operative Technics and Operative Dentistry.* 706 East University Avenue.

HOWARD B. MERRICK, B.S., *Instructor in Surveying.* 928 Church Street.

EDWARD MILTON BRAGG, B.S., *Instructor in Marine Engineering and Naval Architecture.* 718 South Ingalls Street.

HENRY WILLIAM DUBEE, A.M., *Instructor in German.* 1036 Oakland Avenue.

JAMES PYPER BIRD, A.B., *Instructor in French.* 725 Twelfth Street.

GEORGE LIVINGSTONE HAMILTON, PH.D., *Instructor in French.* 538 Church Street.

WILLIAM JAY HALE, PH.D., *Instructor in General Chemistry.* 1218 South University Avenue.

JOSEPH ALDRICH BURSLEY, B.S., *Instructor in Mechanical Engineering.* 1224 Washtenaw Avenue.

RICHARD RAY KIRK, A.M., *Instructor in Rhetoric.* 1215 Volland Street.

RICHARD DENNIS TEALL HOLLISTER, A.M., *Instructor in Elocution.* 645 Twelfth Street.

CHARLES WALLIS EDMUNDS, A.B., M.D., *Instructor in Pharmacology in the Department of Medicine and Surgery and in the School of Pharmacy.* 520 East Ann Street.

AUGUSTUS HALYARD HENRY ROTH, A.B., M.D., *Instructor in Anatomy.* 1027 East Huron Street.

ELMER LEROY WHITMAN, D.D.S., *Instructor in Prosthetic Technics.* 815 East Washington Street.

CHARLES PHILIP WAGNER, PH.D., *Instructor in Romance Languages.* 1101 East University Avenue.

EDWARD LARRABEE ADAMS, A.M., *Instructor in Romance Languages.* 1118 South University Avenue.

WILLIAM D. HENDERSON, A.M., *Instructor in Physics.*
609 Hill Street.

CALVIN HENRY KAUFFMAN, A.B., *Instructor in Botany.*
630 South Twelfth Street.

FREDERICK JACOB MENGER, Jr., A.M., *Instructor in German.*
734 East University Avenue.

JOHN WILLIAM BRADSHAW, Ph.D., *Instructor in Mathematics.*
530 Hill Street.

ELMORE EVEREST BUTTERFIELD, M.D., *Instructor in Pathology in the Department of Medicine and Surgery.*
1414 Washtenaw Avenue.

GEORGE GOTTLIEB STROEBE, Ph.B., *Instructor in Descriptive Geometry and Drawing.*
1412 Geddes Avenue.

HOWARD BRUCE MURPHEY, B.S., *Instructor in Descriptive Geometry and Drawing.*
110 North Thayer Street.

ALLEN LOOMIS, B.S., *Instructor in Mechanical Engineering.*
923 South State Street.

RUSSELL WILLIAM HARGRAVE, B.S., *Instructor in Machine Design.*
1127 Prospect Street.

MAURICE GARLAND FULTON, A.M., *Instructor in Rhetoric.*
718 Monroe Street.

CHARLES JOSEPH TILDEN, B.S., *Instructor in Civil Engineering.*
1215 Volland Street.

H. HAROLD HIGBIE, E.E., *Instructor in Mechanical Engineering.*
802 Monroe Street.

JAMES PERRY BRIGGS, Ph.C., *Pharmacist in the University Hospital.*
University Hospital.

JEANNE CADY SOLIS, M.D., *Demonstrator of Nervous Diseases and Electrotherapeutics in the Department of Medicine and Surgery.*
709 West Huron Street.

NORMAN ASA WOOD, *Taxidermist.*
1216 South University Avenue.

DAVID MURRAY COWIE, M.D., *First Assistant in Internal Medicine in the Department of Medicine and Surgery.*
127 North State Street.

THEOPHIL KLINGMANN, Ph.C., M.D., *Assistant in Diseases of the Mind and Nervous System in the Department of Medicine and Surgery.*
341 East Liberty Street.

JAMES FLEMING BREAKEY, M.D., *Assistant in Dermatology.*
727 South State Street.

CONRAD GEORG, A.B., M.D., *Second Assistant in Surgery in the Department of Medicine and Surgery.*
319 South Fifth Avenue.

EUGENE STEWART GILMORE, *Superintendent of the University Hospital.* 811 East Ann Street.

RUSSELL EBENEZER ATCHISON, M.D., *Superintendent of the University Hospital (Homoeopathic).* 109 Glen Avenue.

GERTRUDE ELSTNER WOODARD, *Assistant Law Librarian.* 301 North Grove Street, Ypsilanti.

FREDERICK RICE WALDRON, PH.B., M.D., *Third Assistant in Surgery in the Department of Medicine and Surgery.* 715 Church Street.

IRA DEAN LOREE, M.D., *First Assistant in Surgery in the Department of Medicine and Surgery.* 122 North Thayer Street.

LIONEL HERMAN DUSCHAK, *Assistant in General Chemistry.* 718 Monroe Street.

EMANUEL EDWARD LUCAS, *Dispensing Accountant in the Chemical Laboratory.* 417 West Fifth Street.

BERTHA SABIN STUART, *Assistant in the Barbour Gymnasium.* 1223 Volland Street.

FRANCES JEWETT DUNBAR, A.B., *Assistant in Zoology.* 322 South Fifth Avenue.

HOBART HURD WILLARD, A.B., *Assistant in Analytical Chemistry.* 644 East University Avenue.

HERMAN WILLIAM MARCH, A.B., *Assistant in Astronomy.* 1222 Washtenaw Avenue.

CHARLES LANPHIER PATTON, M.D., *Demonstrator of Obstetrics and Diseases of Women in the Department of Medicine and Surgery.* 1310 Hill Street.

JOHN HENRY GILPIN, M.D., *House Physician in the University Hospital.* University Hospital.

ALEXIS CHARLES HOUGHTON, *Assistant in General Chemistry.* 903 East Huron Street.

PAUL EDWARD DEMMLER, *Assistant in Qualitative Chemistry.* 615 South Ingalls Street.

MYRTA WOODSON, *Principal of the Training School for Nurses in the Homoeopathic Medical College.* University Hospital (Homoeopathic).

WARREN PHILO ELMER, M.D., *Second Assistant in Internal Medicine in the Department of Medicine and Surgery.* 1000 East Ann Street.

IDA MARVIN TRACY, *Superintendent of the Training School for Nurses in the Department of Medicine and Surgery.* University Hospital.

LEE HOLT CONE, B.S., *Assistant in Research in the Chemical Laboratory.* 411 East University Avenue.

FRANK BURR MARSH, A.B., *Assistant in History.* 520 Church Street.

ADOLPH ERNEST IBERSHOFF, M.D., *Assistant to the Professor of Ophthalmology in the Homoeopathic Medical College.* 910 East Huron Street.

CHARLES BRUCE VIBBERT, A.B., *Assistant in Philosophy.* 516 Cheever Court.

RUSSELL WELFORD BUNTING, D.D.S., *Assistant in Oral Surgery and Dental Technics.* 511 Elizabeth Street.

ALEXANDER LINN TROUT, *Assistant in General Chemistry.* 627 South Thayer Street.

WILLIAM DUNCAN McNALLY, *Assistant in General Chemistry.* 516 Cheever Court.

ALFRED DACHNOWSKI, A.M., *Assistant in Botany.* 643 South Thayer Street.

SILAS FRANKLIN SCOTT, PH.C., B.S., *Assistant in Organic Chemistry.* 212 East William Street.

DAVID J. LEVY, A.B., *Assistant in Bacteriology.* 906 East Huron Street.

FRED MORTIMER ABBOTT, *First Assistant in Physiology.* 1021 East Huron Street.

JOHN FREDERICK SHEPARD, B.S., *Assistant in Psychology.* 516 Cheever Court.

CARL JOHN WIGGERS, *Second Assistant in Physiology.* 308 South Fifth Avenue.

JAMES GEORGE CUMMING, M.D., *Laboratory Assistant in the Pasteur Institute.* 615 East University Avenue.

EDWARD HILDRETH RYDER, A.M., *Assistant in History.* 1003 East University Avenue.

BOYDEN NIMS, PH.G., *Assistant in Physiological Chemistry.* 403 South Main Street.

ADA LOUISE WECKEL, *Assistant in Zoology.* 320 South Fifth Avenue.

JAMES ARTHUR BROWN, *Assistant in Mechanical Engineering.* 540 Packard Street.

OSCAR HERMAN WURSTER, *Assistant in General Chemistry.* 214 West Washington Street.

FREDERICK WILSON WILLARD, *Assistant in General Chemistry.* 928 Olivia Avenue.

CARL JOSEPH PATER, *Assistant in General Chemistry.*
603 Lawrence Street.

JAMES FREDERICK MUNSON, A.B., M.D., *Assistant in Hygiene.* 711 East Ann Street.

JOHN FOSTER EASTWOOD, PH.D., *Assistant in the Hygienic Laboratory, in Charge of Water Analysis.*
236 South Thayer Street.

CHARLES FREDERICK TENNEY, JR., M.D., *Fourth Assistant in Surgery.* 122 North Thayer Street.

CHARLES EDGAR KEELER, M.D., *Fifth Assistant in Surgery.*
710 East Ann Street.

DAVID LEWIS DUNLAP, B.S., *Assistant Demonstrator of Anatomy.* 1000 East Ann Street.

LEROY WILLIAM CHILDS, A.B., *Assistant Demonstrator of Anatomy.* 420 Maynard Street.

JOHN HIBBARD PETTIS, A.B., *Assistant Demonstrator of Anatomy.* 319 Glen Avenue.

NORMA BERTHA ELLES, *Assistant Demonstrator of Anatomy.* 1223 Volland Street.

CRISTOPHER GREGG PARNALL, A.B., M.D., *First Assistant in Obstetrics and Diseases of Women in the Department of Medicine and Surgery.* 632 Forest Avenue.

SAMUEL REESE HAYTHORN, M.D., *Assistant in Obstetrics and Diseases of Women in the Department of Medicine and Surgery, in Charge of Laboratory Work.*
906 East Huron Street.

DON C. URIE, M.D., *Interne in the University Hospital.*
University Hospital.

BERTOLET PERRY ROSENBERRY, M.D., *Interne in the University Hospital.* University Hospital.

DAVID MAURICE KANE, M.D., *Interne in the University Hospital.* University Hospital.

JESSE DURLAND MARS, M.D., *Interne in the University Hospital.* University Hospital.

ALBERT EDWARD STRIPP, M.D., *Interne in the University Hospital.* University Hospital.

CLARENCE ROBERT WILCOX, M.D., *Interne in the University Hospital.* University Hospital.

ARTHUR BROOKS CLAWSON, A.B., *Assistant in Zoology.*
301 North State Street.

WILLIAM J. MARSHALL, *Assistant in Zoology.*
907 North University Avenue.

BERTRAM GARNER SMITH, *Assistant in Zoology.* 209 South Ingalls Street.

WILLIAM DANIEL MORIARTY, A.B., *Assistant in Rhetoric.* 726 Arbor Street.

ORA TRAVIS, A.B., *Assistant in Latin.* 526 Detroit Street.

NELSON FERRIS MACDUFF, *Assistant in Botany.* 709 Twelfth Street.

LINWOOD A. BROWN, Ph.C., *Assistant in Qualitative Chemistry.* 916 Monroe Street.

OSCAR ALFRED EBERBACH, *Assistant in Analytical Chemistry.* 402 South Fourth Avenue.

FREDERICK GEORGE WAHL, *Assistant in Analytical Chemistry.* 1311 Wilmot Street.

ADOLPH ZIEFLE, Ph.C., *Assistant in Pharmacy.* 729 Brooks Street.

CARLOS POINTON LONG, *Assistant in Organic Chemistry.* 709 South Twelfth Street.

MORTIMER COOLEY NICHOLS, *Assistant in Surveying.* 520 Hill Street.

MARK HARRIS GREGG, B.S., *Assistant in Mechanical Engineering.* 311 Thompson Street.

SYBIL MAY WHEELER, Ph.D., *Assistant in Hygiene.* 802 Oakland Avenue.

HENRY HERBERT ARMSTRONG, A.M., *Assistant in Latin.* 1233 Washtenaw Avenue.

JOHN SHARPLESS FOX, A.B., *Assistant in History.* 619 South Thayer Street.

HARRY STOWE McGEE, M.D., *Assistant in Gynaecology.* 514 Thompson Street.

EDWARD LAWRENCE HOGAN, B.S., *Assistant in Mechanical Engineering.* 607 East Huron Street.

LYLE ANTRIM WHITSIT, *Assistant in Mechanical Engineering.* 908 Lincoln Avenue.

JOEL MARTIN BARNES, *Assistant in Chemical Technology.* 1030 East Huron Street.

LEON J. GIBSON, M.D., *House Surgeon in the University Hospital (Homoeopathic).* University Hospital (Homoeopathic).

HAROLD LUCE LOWN, M.D., *Interne in the University Hospital (Homoeopathic).* University Hospital (Homoeopathic).

✓ FRANK JOHN MELLENCAMP, A.B., *Assistant in Physics.* 509 Forest Avenue, Ypsilanti.

JAMES FLOYD HALLIDAY, A.B., *Assistant in History.*
510 East William Street.

ALLEN MARSHALL KLINE, A.B., *Assistant in History.*
621 Forest Avenue.

JOHN FREDERICK PRESTON, *Assistant in Botany.*
1350 Geddes Avenue.

BURTON SAMUEL KNAPP, B.S., *Assistant in Chemistry.*
1130 Washtenaw Avenue.

S. FRED EDWARDS, M.S., *Assistant in Bacteriology.*
1008 Cornwell Place.

GEORGE SLOCUM, M.D., *Demonstrator of Ophthalmology in the Department of Medicine and Surgery.*
327 East Huron Street.

WALTER FRANCIS COLBY, A.B., *Assistant in Physics.*
802 South State Street.

EARL HAZELTINE FROTHINGHAM, A.B., *Assistant in the University Museum.*
117 North State Street.

OLIVE CLARISSA LATHROP, *Assistant Librarian, in Charge of the Engineering Library.*
707 South Ingalls Street.

JOHN G. WINTER, A.M., *Assistant in Greek.*
121 Glen Avenue.

WILLIAM ROBINSON LYMAN, A.B., *Assistant in Otology, Rhinology, and Laryngology in the Department of Medicine and Surgery.*
1003 East Huron Street.

University of Michigan

THE UNIVERSITY AND THE STATE

The University of Michigan is a part of the public educational system of the State. The governing body of the institution is a Board of Regents, elected by popular vote for terms of eight years, as provided in the Constitution of the State. In accordance with the law of the State, the University aims to complete and crown the work that is begun in the public schools, by furnishing ample facilities for liberal education in literature, science, and the arts, and for thorough professional study of engineering, medicine, law, pharmacy, and dentistry. Through the aid that has been received from the United States and from the State, it is enabled to offer its privileges, with only moderate charges, to all persons of either sex, who are qualified for admission. While Michigan has endowed her University primarily for the higher education of her own sons and daughters, it must be understood that she also opens the doors of the institution to all students, wherever their homes. It is in this broad, generous, and hospitable spirit, that the University has been founded, and that it endeavors to do its work.

ORGANIZATION OF THE UNIVERSITY

The University comprises the following departments:—

I. The Department of Literature, Science, and the Arts (including The Graduate School).
II. The Department of Engineering.
III. The Department of Medicine and Surgery.
IV. The Department of Law.
V. The School of Pharmacy.
VI. The Homoeopathic Medical College.
VII. The College of Dental Surgery.

Each department has its special Faculty. The University Senate, a body representing all the faculties, considers questions of common interest and importance.

In a Summer Session regular courses of instruction are given in the Department of Literature, Science, and the Arts, the Department of Engineering, the Department of Medicine and Surgery, and the Department of Law.

On the completion of prescribed courses of study degrees are conferred by the University as follows: In the Department of Literature, Science, and the Arts, the degrees of Bachelor of Arts, Master of Arts, Doctor of Philosophy, and Doctor of Science; in the Department of Engineering, the degrees of Bachelor of Science (in Civil, Mechanical, Electrical, Chemical, and Marine Engineering, and in Naval Architecture), Master of Science, Civil Engineer, Mechanical Engineer, Electrical Engineer, Chemical Engineer, Marine Engineer, and Naval Architect; in the Department of Medicine and Surgery, the degree of Doctor of Medicine; in the Department of Law, the degrees of Bachelor of Laws and Master of Laws; in the School of Pharmacy, the degrees of Pharmaceutical Chemist, Bachelor of Science and Master of Science (in Pharmacy); in the Homœopathic Medical College, the degree of Doctor of Medicine; in the College of Dental Surgery, the degrees of Doctor of Dental Surgery and Doctor of Dental Science.

Students in any department of the University may enter the classes in any other department, upon obtaining permission from the faculties of the respective departments.

THE LIBRARIES

The libraries of the University are the General Library, the Medical Library, the Law Library, the Homœopathic Library, and the Dental Library. They contained in the aggregate, June 30, 1904, 182,680 volumes and 4,000 pamphlets. One thousand one hundred ten periodicals are regularly received.

The General Library contains 144,584 volumes, 3,600 pamphlets, and 2,250 maps. It includes the following special collections: Parsons Library (political economy), 6,076 volumes; McMillan Shakespeare Library, 5,441 volumes; Goethe Library, 1,055 volumes. The Hagerman Collection and the Dorsch Library, formerly treated as special collections, have, with the approval of the donors, been merged in the general collection. Eight hundred ten periodicals are taken by the General Library.

Within the last few years the library has been enriched by several large and valuable gifts. Among the more important of these that deserve special mention are the historical books, including the Stevens Facsimiles, presented by Mr. Clarence M. Burton, of Detroit; the Morris Philosophical Library, presented by Mrs. George

S. Morris*; the Alpheus Felch Historical Library, bequeathed by the late Governor Alpheus Felch; the Walter Library of Romance Literature, bequeathed by the late Professor Edward L. Walter; the Stearns Musical Collection, presented by Messrs. Frederick and Frederick K. Stearns, of Detroit; and, subject to certain conditions as to its use, the Germanic Library of the late Professor George A. Hench, presented by his mother, Mrs. Rebecca A. Hench.

The catalogue at present in public use is a manuscript card catalogue of authors and subjects. The library has recently been made one of the twenty-five depositories for a set of the printed catalogue cards issued by the Library of Congress; it has acquired a set of those printed by the John Crerar Library, of Chicago; it subscribes, also, to the card publications of the American Library Association. Within a few years, it is hoped, the bulk of the University's book possessions will be recorded in a new public catalogue based on these various series of printed cards.

Members of the faculties and other officers of the University may draw books from the library, subject to certain restrictions. To all other persons it is a reference library. The reading room for general use will seat 300 readers. Separate rooms are provided for advanced students where work is pursued with the necessary books at hand.

The library is open for consultation fourteen hours daily during the academic year, nine hours daily during the Summer Session, and six hours daily from the close of the Summer Session until the end of the summer vacation. On Sundays and important legal holidays the library is closed.

The income of the FORD-MESSER BEQUEST of $20,000, and of the COYL BEQUEST of $10,000, is used for the increase of the General Library.

THE MEDICAL LIBRARY contains 13,139 volumes and 310 pamphlets, is shelved with the General Library, and is consulted under the same regulations. Two hundred twenty-seven medical journals are regularly received.

THE LAW LIBRARY, containing 21,480 volumes, occupies the large room on the second floor of the new law building. Twenty journals are taken.

THE LIBRARY OF THE HOMOEOPATHIC MEDICAL COLLEGE is shelved with the General Library, and is subject to the same regulations. It contains 2,002 volumes and 90 pamphlets. Thirty-seven periodicals are regularly received.

THE LIBRARY OF THE COLLEGE OF DENTAL SURGERY* is shelved in a room in the dental building. It contains several sets of valuable periodicals and many of the most important treatises on the theory and practice of dentistry. The whole number of volumes is 1,475. Sixteen dental periodicals are taken.

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*Named the TAFT LIBRARY in honor of the late Professor Jonathan Taft, by action of the Board of Regents in July, 1904.

THE ASTRONOMICAL OBSERVATORY

The observatory, whose erection was originally provided for by liberal citizens of Detroit, has been enlarged and improved from time to time, but is still known as the Detroit Observatory. The building consists of a main part, with a movable dome, and two wings. The meridian circle in the east wing was presented by Mr. Henry N. Walker, of Detroit. It was constructed by Pistor & Martins, of Berlin. In the main part are mounted clocks by Tiede and Howard. The west wing contains the observatory library, which connects with the residence of the Director. The refracting telescope, mounted in the dome, has an object glass thirteen inches in diameter. It was constructed by the late Henry Fitz, of New York.

A small observatory near the main building is used in the work of instruction. It contains an equatorial telescope of six inches aperture, and a transit instrument of three inches aperture, with zenith telescope attachment, as well as sextants and surveyor's transits for instruction in field astronomy.

THE MUSEUMS

The University Museum contains collections illustrative of geology (the mineral collection, for convenience of instruction in mineralogy, being cared for in Tappan Hall), of zoology, and of anthropology. Special collections in botany, materia medica, chemistry, anatomy, and the industrial arts are deposited in the various buildings devoted to the subjects they illustrate. All of these are accessible both to students and to visitors. The University affords a secure depository for objects of value and curiosity, and it is hoped that frequent gifts will be made to its several collections.

The following descriptions indicate the character of some of the collections included in the University Museum.

I. THE GEOLOGICAL COLLECTION consists of:—

a. THE MINERALOGICAL COLLECTION, comprising about 6,000 specimens. It embraces about 2,500 specimens (principally European) purchased of the late BARON LEDERER, and known as the LEDERER COLLECTION; and, besides others, a rich collection of the MINERAL SPECIES OF MICHIGAN, including all varieties of copper ore and associated minerals from the Lake Superior mining region.

b. The large series of lithological and palæontological specimens brought together by the State geological survey, of which over a hundred fossil species have become the types of original descriptions.

c. THE WHITE COLLECTION, consisting of 1,018 distinct entries, 6,000 specimens, of invertebrate fossils.

d. THE ROMINGER COLLECTION, embracing about 5,000 species of invertebrate fossils, represented by at least 25,000 specimens. The collection contains (1) the types of all the palæozoic corals described by Dr. Rominger in the Geological Report of Michigan, volume iii,—not alone the specimens figured, but numerous specimens of each species, which are not duplicates, but illustrations of different characters and varieties; (2) a collection of *Stromatoporoids* — probably the largest and finest in the world; (3) a similar collection of *Bryozoa;* (4) palæozoic fossils belonging to all the other classes; (5) European fossils of all classes and ages in large numbers — the sponges forming, with the American specimens, a collection of great interest. Since the purchase of this collection by the University, Dr. Rominger has added to it more than 250 species of invertebrate fossils, represented approximately by 1,000 specimens, among which there are many of great value.

e. SMITHSONIAN DEPOSITS, consisting, for the present, of a collection of specimens of foreign and domestic building stones, and twenty-three specimens of fossils from the Upper Missouri.

f. MISCELLANEOUS DONATIONS, COLLECTIONS, AND PURCHASES, including a series illustrative of the metalliferous regions of the Upper Peninsula, collected by the late Professor Alexander Winchell; an interesting collection of fossils, chiefly Cretaceous, from the Yellowstone Valley, presented by the late General Custer, U. S. A.; and a series of six to eight hundred rock species and varieties from the Drift of Ann Arbor, collected, dressed to standard size and form, and presented by the late Miss Eliza J. Patterson. A collection of 150 specimens of ores and rocks has recently been presented by the United States National Museum.

The entire collection, the larger portion of which consists of invertebrate fossils, is estimated to contain approximately 17,000 entries and about 60,000 specimens.

II. THE ZOOLOGICAL COLLECTIONS are large. They include a collection of the animals of the Pacific Coast made by Lieutenant Trowbridge, and many valuable specimens collected in the Philippine Islands by Dr. Joseph B. Steere in the years 1887 and 1888.

The Bird Collection includes about 4,285 skins and 1,533 mounted specimens. A series of groups illustrative of special facts, such as protective coloration, albinism, parasitism, individual variation, dichromatism, difference in plumage correlated with age, season, sex, etc., has been installed, and a second series illustrative of the life history of typical representatives of the several orders of birds is in process of installation. In all these groups natural surroundings are reproduced in detail. The collection of Alcoholic Material includes a fine series of invertebrate types, as well as many interesting vertebrates and a considerable number of anatomical preparations. It is stored in a darkened room. The Mollusk Collection includes the shells of nearly 6,000 species, representing most of the genera of land, fresh-water, and marine mollusks. They are thoroughly classified and arranged according to the latest authorities, making the collection of special value to the student. The Coral

Collection includes a large number of species, mostly from Formosa and the Philippines.

III. THE ANTHROPOLOGICAL COLLECTIONS. Among the most notable features of this department of the Museum are:—

a. THE ORIENTAL SECTION, including the entire Chinese Collection mentioned below, weapons, clothing, farm implements, carpenters' tools, porcelains, and idols from China, Formosa, and the Philippines, secured by the Beal-Steere Expedition, and an interesting series of South Sea Island weapons, presented by the Smithsonian Institution.

In 1885 the Chinese Government presented to the University the exhibit which it sent to the New Orleans Exposition. A part of the collection, numbering several thousand specimens, is on exhibition in the museum building. It illustrates with special fullness the varieties of Chinese cotton, the Chinese processes of manufacturing cotton, and the finished products of cotton and silk. There are many articles showing the skill of the Chinese in working in wood, in ivory, and in porcelain, in embroidery, and in painting on glass and on silk.

b. The STEARNS COLLECTION of musical instruments, comprising over 1,400 typical instruments of all nations—ancient and modern, civilized and savage—illustrating the history of music and the progress of musical art.

c. The collection of Peruvian and New Mexican ceramics, including an exceptionally fine series of ancient Peruvian burial pottery and modern basins secured by the Beal-Steere Expedition, and an extensive series of New Mexican pottery received from the Smithsonian Institution.

d. The modern Indian section, including wearing apparel, implements of war and the chase, and household utensils of the South American, North American, and the Alaskan Indians, and a fine example of the Alaskan totemic column.

e. The Stone Age section, including the local collection of the late David De Pue, a series of Danish implements, and a series of casts of rare implements prepared by the Smithsonian Institution.

MUSEUM OF THE FINE ARTS AND HISTORY

The works of art belonging to the University are on exhibition in the galleries provided for them in the library building. A printed catalogue, prepared by Professor Martin L. D'Ooge, contains fuller descriptions than can here be given. The collection was begun in 1855. It contains a gallery of casts, in full size and in reduction, of some of the most valuable ancient statues and busts, such as the Apollo Belvedere, the Laocoon, and the Sophocles; more than two hundred reductions and models in terra cotta and other materials; the statue of Nydia by Randolph Rogers; casts of modern statues, busts, etc., and reliefs; a number of engravings and photographic views, illustrating especially the architectural and sculptural remains of Ancient Italy and Greece; a small collection of engraved copies of the great masterpieces of modern painting; two series of historical medallions — the HORACE WHITE COLLECTION and the GOVERNOR BAGLEY COLLECTION — the former illustrative of ancient, mediæval, and modern European history, the latter designed to embrace the commemorative medals struck by order of Congress or other authorities, and now containing one hundred such medals; and a large collection of coins, chiefly Greek and Roman, presented to the University by the late Dr. Abraham E. Richards.

The ROGERS GALLERY comprises the entire collection of the original casts of the works of the late Randolph Rogers, more than a hundred in number. It was given by that distinguished sculptor to the State of Michigan for the University museum.

The LEWIS GALLERY, bequeathed to the University by the late Henry C. Lewis, of Coldwater, comprises about four hundred and fifty paintings and forty pieces of statuary.

Through the generosity of Mr. Henry P. Glover, of Ypsilanti, the University has recently acquired possession of the valuable De Criscio collection of Latin inscriptions, about 250 in number, ranging in age from the reign of Augustus to the 5th century, A. D. The most of the inscriptions are on slabs of marble.

The late J. Q. Adams Fritchey, A.M., of St. Louis, Mo., a graduate in the Class of 1858, bequeathed to the University a collection of modern coins, medals, and medallions, numbering about one thousand, issued prior to 1876, and possessing historic value and interest to numismatists.

Dr. Henry Smith Jewett (A.B., 1868), of Dayton, Ohio, has recently presented to the University a complete set of the various issues of fractional currency put out by the United States government during the Civil War and Reconstruction periods. Accompanying this collection is a nearly complete set of the "documentary" stamps issued by the government during the Civil War.

SPECIAL COLLECTIONS AND MUSEUMS

THE BOTANICAL COLLECTION is shelved in the botanical laboratory, and contains, in addition to Michigan plants collected by the public surveys, several valuable herbaria and sets of plants that have been presented to the University from time to time. Among these some of the most important are the HOUGHTON HERBARIUM, the SAGER HERBARIUM, the AMES HERBARIUM, the HARRINGTON COLLECTION, the BEAL-STEERE BOTANICAL COLLECTION, the ADAMS-JEWETT COLLECTION, and the GARRIGUES COLLECTION, all of which have been described in Calendars of previous years.

Among the more recent acquisitions are Collins, Holden, and Setchell's Phycotheca Boreali-Americana, Briosi and Cavara's Funghi Parasiti, Seymour and Earle's Economic Fungi, Ellis's North American Fungi, presented by Mr. Joseph B. Whittier, large additions to the cryptogamic flora of Michigan, arranged and catalogued by the late Mr. Lorenzo N. Johnson, and nearly 2,000 species of plants, mostly phanerogams, collected by Mr. Lewis Foote while engaged in the United States Lake Survey, and presented by him to the University.

In addition to these *exsiccati*, there is an extensive collection of material mounted in alcohol or formalin in museum jars, illustrating the biological relations of plants.

The collections in PHARMACOGNOSY and INDUSTRIAL CHEMISTRY occupy a floor space of 2,500 square feet in the chemical building, and are briefly described as follows:—

The PHARMACOGNOSY COLLECTION comprises several thousand mounted and labeled specimens of products from all parts of the world, such as are used for medicinal, alimentary, and industrial purposes. The articles are of vegetable and of animal origin, and are arranged in the present system of scientific classification. Water-color plates and photographs, showing the form and habit of the plant, accompany the crude drugs and their products. Series of chemical constituents, isolated by students, and mounted in part in the relative proportions in which they exist in the plant, make up a phytochemical exhibit of composition. There is a set of drawings and wall-charts of the histological structure of drugs, foods, and condiments, for aid in the study of adulterations, together with photomicrographs of longitudinal and transverse sections.

The cultivation and preparation for the market and the commerce of these articles among the peoples of the earth, are illustrated by collections of authentic photographs, many of which have been expressly procured for the study of commerce with distant parts of the world.

CHEMICAL INDUSTRY.—In this collection the natural resources and chief manufactures of Michigan, and of various parts of the world, are illustrated. Crude materials, raw and unfinished products, as well as completed articles of commerce in their several grades are displayed, together with models and plans of production by modern methods. Among the branches of industry and articles of manufacture represented are petroleum products; Portland cement; clay wares; the beet-sugar manufacture; the great alkali works; starches, oils, and other maize products; wood distillation; the coal-tar dyes. These illustrations of the several branches of chemical technology are for the most part subject to continuous change from the results of the work of the laboratory and the material offered for investigation.

The MUSEUMS OF ANATOMY and MATERIA MEDICA and the DENTAL MUSEUM are housed in the buildings of the Medical and the Dental Departments, respectively, and are described in the chapters devoted to those departments.

THE LABORATORIES

In the several laboratories of the University opportunities are provided for practical instruction in physics, chemistry, geology, zoology, psychology, botany, forestry, actuarial work, engineering, histology, physiology, hygiene, electrotherapeutics, pathology, anatomy, and dentistry.

The laboratories designed primarily for students of engineering, of medicine, and of dentistry are described in the chapters devoted to the engineering, the medical, and the dental departments.

PHYSICAL LABORATORY

The basement of the physical laboratory, the floor of which is only two feet below grade, is devoted to the experimental work in heat, electricity, and magnetism. It contains about 4,500 square feet of floor space, and is divided into ten rooms. These include a photometry room, with blackened walls, for testing the candle power of incandescent and arc electric lamps, and a battery room containing a large storage-battery for experimental purposes. The other rooms are provided with heavy stone-capped piers and are used chiefly for the work in electrical measurements.

On the first floor are a commodious lecture room, an apparatus room, three rooms for general laboratory purposes, and a suite of two rooms for the office of the director.

The second floor contains ten rooms, the largest of which is used as a laboratory for beginners; the others are devoted to sound, light, electrochemistry, research work, etc.

The laboratory is supplied with apparatus from the best European and American makers. In sound the equipment includes a complete set of Koenig's tuning forks, with standard resonators; a pair of large forks capable of adjustment while sounding; a La Cour's phonic wheel; a Helmholtz double siren; and an Appunn's tonometer.

The apparatus in light includes spectrometers from the Geneva Society, from Zeiss, and from Schmidt & Haensch; an optical bench, with accessories, from Duboscq; a Zeiss focometer and interferometer; a polariscope from Schmidt & Haensch; a Michelson's interferometer; and spectrometer accessories, including a Brace spectrophotometer and apparatus suitable for work in the ultra-violet and infra-red spectra.

The outfit for electrical work includes galvanometers, resistance boxes, and reading telescopes from Edelmann, Hartmann & Braun, Elliot Brothers, Nalder Brothers & Co., Queen & Co., and Leeds & Northrop Co.; standards of resistance from Elliot, Nalder, and Wolff, the last with Reichsanstalt certificates, besides a compensating apparatus from Wolff, standard condensers, a standard of self-inductance, and many Weston instruments.

In heat, mention may be made of standard thermometers, including a set from Haak reading to hundredths of a degree and covering the scale from — 5°C. to 105°C.; a platinum and platinum-rhodium couple, certified at the Reichsanstalt, and accessory apparatus from Siemens & Halske for the measurements of high temperatures; air thermometers; Clement & Desormes' apparatus for measuring the ratio of the two specific heats of a gas; and Regnault's vapor-pressure apparatus.

Complete plans have been made for an enlargement of the building, to contain a lecture room to seat four hundred students, and other rooms for laboratory purposes.

CHEMICAL LABORATORY

The chemical laboratory is organized for the chemical work of the University in a building having a floor space of forty thousand square feet. It is equipped for such branches of chemistry as are most necessary to the advancement of the science and its applications in the world. It provides about fifty courses of study in which classes are formed during the year, with laboratory work, lectures, and recitations. The students pursuing these courses are registered in the several departments of the University, each student being responsible to the Faculty of his department for the completion of his required chemical studies.

For the courses in elementary inorganic chemistry the outfit of students' tables has been changed and extended to meet the demands for effective work and scientific method. For all the courses in inorganic analysis the purity of reagents is systematically guarded and the composition of material given out for students' work is thoroughly controlled. The appliances for organic synthesis are excellent, both in the training courses and in the work of research. For physical chemistry and electrochemistry four rooms have been lately finished and supplied with the requisite apparatus throughout, including a very complete system of wiring from the storage battery to the working desks. An Otto Wolff's potentiometer, with accessories, is in connection for accurate electrical measurements.

For the courses in technical chemistry a laboratory department is well fitted up for gas engineering, cement testing, metallurgic assaying, sugar analysis, and any investigations of chemical industry. There are electric furnaces, the Le Chatelier pyrometer, a photometer room, different calorimeters, etc. There are class outfits for pharmaceutical preparations, pharmacognosy, drug assaying, and the chemistry of alkaloids, also for a course in the analysis of fats and oils. Collections of specimens, models, and charts are furnished for the lectures and for private studies in the several subjects.

Throughout the laboratory the use of chemical balances and other instruments of precision is so regulated that each student is separately responsible for the articles placed in his hands. The laboratory fees of the student include a sufficient rental of all apparatus and account of all chemicals.

Equipment for original research is provided as far as possible in the principal subjects.

GEOLOGICAL LABORATORY

Opportunity for practical work in geology is provided in rooms set apart for this use in the museum building. The rooms are furnished with microscopes, photographic instruments, cutting and polishing lathes, and other apparatus for the preparation of specimens. Special encouragement and assistance are given to students wishing to carry on original investigations.

BOTANICAL LABORATORY

In the botanical laboratory instruction is given in the practical study of the structure, development, and physiology of plants, and opportunity is offered for investigation in cellular biology, in embryology and development, in physiology, pathology, and ecology.

Students in the more elementary courses have constant personal assistance and direction from the instructors; the advanced courses require more independent work. Every facility within the means at command will be provided for those capable of doing the work in research.

The laboratory comprises five large rooms for general work, five smaller rooms for the work of instructors and investigators, a room for alcoholic material, dark rooms, and store rooms. The section assigned to morphology and cytology is provided with microscopes (among them a Zeiss microscope with mechanical stage, apochromatic objectives, and compensation oculars), camera lucidas, polarizing apparatus, and photographic camera; Cambridge, Minot-Zimmermann, Jung, and freezing microtomes; sterilizers, means for imbedding, stains and reagents, Wardian cases, and aquaria. The equipment for physiology, besides work rooms provided with chemicals and general apparatus, includes a conservatory, a dark room with constant temperature, incubators, sterilizers, horizontal microscope, balances, thermographs, barometer, auxanometers, klinostats, and centrifuges. The heavier apparatus is driven by water motors and an electric motor. There is a good working library in the laboratory, containing, besides many monographs, the leading French, German, and English periodicals.

ZOOLOGICAL LABORATORY

The zoological laboratory comprises twenty rooms in the second and third stories of the south wing of University Hall, with about 8,000 square feet of floor space; it is lighted by fifty-six windows. There is a large room for the elementary work of students, and a smaller room for more advanced work in vertebrate morphology. These two rooms accommodate about fifty students at one time. There is a room for the housing of small mammals, a room for storage, and a room in which a reference library is shelved. The professor in charge has a private room; and six small rooms, each accommodating one or more persons, are used by the instructors and by students engaged in investigation. These rooms are provided with water and gas, and are fitted with tables especially designed for the work. A room for work in experimental zoology, a small lecture room, and a photographic room have been recently equipped. There are also rooms set apart in the museum building for the use of persons engaged in the study of museum material.

Suitable provision has been made for the study of animals inhabiting the neighboring waters. There are sixteen aquaria (the largest seven feet long), and there are arrangements for maintaining thirty small aquaria for the rearing of embryos and the study of isolated forms.

There is a good equipment of microscopes, including a Zeiss microscope with apochromatic lenses, of microtomes, of Zeiss's photographic apparatus, and of other accessories. For illustrative purposes, there is a collection of alcoholic specimens (many of them from the Naples Zoological Station), a full collection of Leuckart and Nitsche's wall charts, and small collections of Ziegler's models in wax, and Blaschka's models in glass.

PSYCHOLOGICAL LABORATORY

The psychological laboratory is situated in a detached building in a quiet part of the campus. It contains fourteen rooms of various sizes for general laboratory work and research, including two dark rooms with outside windows. The rooms are all wired so that they can be connected electrically or be supplied with low potential currents from a dynamometer and storage batteries. The rooms are amply supplied with water and gas. Sufficient power for all purposes is furnished by electric motors.

The equipment includes a complete set of apparatus for the work of elementary experimental classes, models of the brain and sense organs, a Hipp chronoscope, kymographs, a large pendulum and gravity chronograph to regulate the registration apparatus, the minor accessories for reaction work, Meumann's time sense apparatus, the Marbe color mixer, a nearly complete set of Hering's instruments for color determinations, the various instruments made by Verdin for recording the movements of the vocal organs, a fall phonometer of improved design, a hydraulic air compressor for blowing the siren and Appunn's reeds, an Ellis harmonical, forks by Koenig, Edelmann, and Appunn, a Stern tonvarietor, and an unusually complete series of instruments for recording variations in circulation, respiration, and voluntary effort under the influence of mental states. In addition, there are many of the usual instruments for work in other lines. Such apparatus as is needed for advanced work or research will be procured as required. Every facility and encouragement is offered to students of sufficient preliminary training to undertake investigation on some special problem.

FORESTRY LABORATORY

In the forestry laboratory students receive instruction in forest botany, timber physics, structure of woods, and certain features of wood technology, as well as in forest measurements and the methods of study of the growth of timber. A good collection of wood specimens, sections of trees, and herbarium material is provided and will be increased as rapidly as possible. There is an ample supply of microscopes, compasses, calipers, height measures, and other apparatus for use in the laboratory and in the field.

SAGINAW FOREST FARM

Special facilities for the study of forestry are supplied by the Saginaw Forest Farm, a tract of land about one mile west of the city of Ann Arbor, presented to the University by the Honorable Arthur Hill, of Saginaw. The farm, comprising eighty acres, is a typical example of the low hilly land of the drift district, and contains as great a variety of topographical and soil conditions as could be expected in an area of this extent. Its soils vary from heavy clay to sandy gravel. In addition to its other good features, there is a lake of clear water, from ten to fifty feet deep and covering an area of twelve acres.

The farm is to serve as an object lesson in forestry. Upon it provision is to be made for (1) an arboretum of all useful forest trees that can grow in Michigan; (2) demonstrative areas for seedbed and nursery work; (3) model plantations of forest trees, and (4) special experiments in forestry, relating to various methods of propagating different kinds of timber, to the raising of particular forest products, and to other practical purposes.

STATISTICAL LABORATORY

This laboratory is equipped with various instruments to facilitate the computation and tabulation of statistics; among these may be mentioned one twenty-figure Millionaire arithmometer, one sixteen-figure Millionaire arithmometer, one sixteen-figure Tate arithmometer, one thirteen-figure Brunsviga arithmometer, several adding machines, and a tabulating typewriter. Students are instructed in their use and in the preparation and tabulation of premiums, reserves, and other schedules required in the practical work of insurance offices and statistical bureaus. The laboratory also contains a working library comprising most of the important actuarial journals and text books on actuarial theory. Reports on vital and other statistics are drawn from the general library when required.

OTHER FACILITIES FOR INSTRUCTION

For descriptions of the various laboratories, shops, museums, etc., used in connection with the work in the professional departments, see the chapters on the several departments.

THE HOSPITALS

There are two hospitals connected with the University, affording ample facilities for clinical instruction. One of them is under the direction of the Faculty of the Department of Medicine and Surgery; the other is in charge of the Faculty of the Homœopathic Medical College. Further information in regard to the hospitals is given in the chapters on the medical departments.

AIDS TO MORAL AND RELIGIOUS CULTURE

The churches of the city of Ann Arbor are cordially thrown open to the students, whose interests are largely consulted by the pastors in their pulpit instruction and in their plans of work. There are churches of the following communions in the city: Baptist, Congregationalist, the Disciples, English Lutheran, German Lutheran, German Methodist, Methodist Episcopal, Presbyterian, Protestant Episcopal, Roman Catholic, and Unitarian.

The Students' Christian Association,* which has a large membership, holds stated meetings for religious and for social improvement. Through the enterprising efforts of the association and the benevolence of those interested in its aims, a spacious and beautiful building, called Newberry Hall, has been erected for its use opposite the University campus.

The University Young Men's Christian Association has its home in McMillan and Sackett Halls, corner of State and Huron Streets, and is organized for Christian work among the young men of the institution. It is affiliated with the World's Student Christian Federation, and employs a general secretary who spends his entire time in the interest of the association.

The University Young Women's Christian Association, organized in 1901, has a present membership of more than eighty. It is affiliated with the state and the national associations.

Guilds and other societies, consisting chiefly of students, have been organized in several of the churches both for religious and moral culture and for social entertainment. The Hobart Guild, connected with St. Andrew's Church (Protestant Episcopal), has a commodious building, called Harris Hall, planned and equipped for the objects of the guild; and two of the several lectureships contemplated in its plans, have been endowed,—the Baldwin Lectureship for the Establishment and Defense of Christian Truth, and the Charlotte Wood Slocum Lectureship on Christian Evidences. The Tappan Presbyterian Association occupies the building known as McMillan Hall; it owns a theological library of several thousand volumes, and one of its purposes is to maintain annual courses of lectures upon church history and church work. The Methodist Episcopal Church has organized the Wesleyan Guild, and has a permanent fund for the support of the Henry M. Loud Lectureship. The Baptist Church has recently acquired property which it designs to use for guild purposes. The Young People's Religious Union is a society formed in the Unitarian Church with similar purposes. The Foley Guild is an organization of Roman Catholic students under the patronage of the Rt. Reverend John S. Foley, bishop of the diocese. The society organized in connection with the Church of the Disciples is called the Inland League.

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*During the current year a union of the three Christian Associations of the University has been effected.

FACILITIES FOR PHYSICAL CULTURE

Gymnasiums.—The University has two gymnasiums, one for men and one for women, erected at a cost of about $125,000. The former is called the Waterman Gymnasium; the latter, the Barbour Gymnasium. In the conduct of the gymnasiums the aim is not so much the development of a few gymnastic experts as the provision of wholesome physical exercise for the many. The facilities of the buildings, including physical examinations and instruction, are free to all students, the only charge being a rental of $2 a year for a locker. A physical examination and a stated amount of gymnasium work in regular classes are required of students in the Department of Literature, Science, and the Arts, and in the Department of Engineering, during their first year of residence at the University. For other students, gymnasium work, for the present, is voluntary.

The Waterman Gymnasium.—The Waterman Gymnasium was named in honor of the late Joshua W. Waterman, of Detroit, who contributed largely to its cost. The main floor is a rectangle with truncated corners and dimensions of 150 by 90 feet, and is well equipped with the various kinds of apparatus usually found in the best modern gymnasiums. Several smaller rooms are devoted to administration, fencing, boxing, and other special purposes, while the basement is given up to baths and lockers. The main hall is lighted in the daytime through a large skylight 66 feet above the floor, and in the evening by electricity. A gallery makes room for an elliptical running track 375 feet in length.

The Barbour Gymnasium.—The Barbour Gymnasium is named in honor of the Honorable Levi L. Barbour, of Detroit, a Regent of the University and a liberal contributor to the funds for its erection. The main floor has dimensions of 90 by 88 feet, and contains the apparatus required for the first and the second year exercises. The building contains parlors for the accommodation of the women and a commodious hall (called the Sarah Caswell Angell Hall) for lectures, meetings, theatrical entertainments, etc. The gymnasium proper is thoroughly equipped with the usual apparatus, a swimming tank, and bathing facilities. The Women's Dean and the Director of the gymnasium have organized the work in accordance with the best known methods. Special care is taken to ascertain the exact physical condition of each student entering upon gymnasium work, defects of the body are discovered, and corrective work is prescribed for all who need it. Tennis, basket ball, and gymnastic games form a part of the recreative work.

Dexter M. Ferry Athletic Field.—By the generosity of Mr. Dexter M. Ferry, of Detroit, an addition of twenty acres has been made to the grounds formerly known as Regents' Field. The combined tract of thirty acres lies a few minutes' walk southward from the campus, and is set apart and equipped especially for open-air sports.

Supervision of Athletic Sports.—The general supervision of athletic sports is vested in a Board of Control, consisting of nine members, five of whom are chosen from the University Senate, and four chosen by the students of the University.* The Board thus constituted has charge of all matters involving the relation of athletic sports to the University; for example, the eligibility of players proposed for any University team, the arrangement of intercollegiate games, the granting of leaves of absence, and the investigation of charges of misconduct on the part of players. The policy of the Board is to foster the spirit of honor and gentlemanliness in athletics, to suppress evil tendencies, and to see that play shall not encroach too much upon the claims of work. For the furtherance of these ends certain specific rules and regulations have been adopted, a copy of which can be had on application to the Secretary of the University.

ORATORICAL ASSOCIATIONS

In addition to the University instruction in elocution and oratory, an active and earnest interest in public speaking is fostered and maintained through the agency of voluntary associations of students, which arrange and conduct debates and contests and co-operate with similar organizations in other institutions.

UNIVERSITY ORATORICAL ASSOCIATION

The University Oratorical Association was organized by students of the Department of Literature, Science, and the Arts, and of the Department of Law, under the guidance of the professor of elocution and oratory, to foster an interest in oratory and debate, and also to participate in the direction of the annual contests of the

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*The Board of Control for the year 1904-1905 consists of Professor Pattengill, Chairman, Professor Lane, Professor Dow, Professor Hoff. Professor Sadler, William C. Cole, Fred S. Norcross, Paul S. Miller, and Ross H. Kidston. Mr. Charles Baird is Director of Outdoor Athletics.

Northern Oratorical League and of the Central Debating League, and of such other contests as may be arranged by the association.

At the annual oratorical contest held the third Friday of March, the students who take first and second honors, respectively, are chosen to represent the University as orator and alternate in the annual contest of the Northern Oratorical League, and are also awarded testimonials, as follows: First Honor, the Chicago Alumni Medal and $50; Second Honor, $50. In 1904 the first and second honors were awarded, respectively, to James Floyd Halliday and Hugo Sonnenschein.

Chicago Alumni Medal.—The Chicago Alumni Association of the University of Michigan offers annually a bronze medal as a testimonial for excellence in oratory. The medal, designed by Mr. Louis H. Sullivan, of Chicago, is given to the student who is awarded the first honor in the annual oratorical contest.

Association Testimonials.—The students who represent the University as orator and alternate in the annual contest of the Northern Oratorical League are awarded fifty dollars each by the Oratorical Association.

NORTHERN ORATORICAL LEAGUE

The Northern Oratorical League is composed of the oratorical associations of the University of Michigan, Northwestern University, the University of Wisconsin, Oberlin College, the State University of Iowa, the University of Chicago, and the University of Minnesota. Its purpose is to foster an interest in public speaking and to elevate the standard of oratory, by holding annual contests. The contests are open only to undergraduates.

Lowden Testimonials.—To encourage public speaking in the universities whose oratorical associations compose the Northern Oratorical League, Mr. Frank O. Lowden, of Chicago, has established an endowment fund, amounting to $3,500, and placed it in the hands of the Regents of the State University of Iowa, as trustees. From the interest annually accruing therefrom the sum of $100 is awarded to the person receiving First Honor at the annual contest of the Northern Oratorical League and $50 to the person receiving Second Honor.

HAMILTON CONTEST

In 1903 the Hamilton Club of Chicago instituted a contest among the following institutions: The Universities of Michigan, Wisconsin, Illinois, Indiana, Iowa, Chicago, and Minnesota, Northwestern University, and Knox College. The contest occurs each year on January 11, Hamilton's birthday. Of the representative orations from the universities only the four judged highest in thought by a committee appointed for that purpose are delivered at the final contest. The subject of the orations must be Hamilton or his contemporaries, or the events with which he had to do.

The Hamilton Club offers as testimonials $100 to the student winning First Honor and $50 to the student winning Second Honor. The Michigan student winning the right to speak is allowed $25 for his expenses and $5 for the printing of his oration, and may become a member of the Hamilton Club within two years without initiation fee. In the contest of 1905 Hugo Sonnenschein won the right to represent the University of Michigan in the final contest and also won Second Honor in the contest.

CENTRAL DEBATING LEAGUE

The Central Debating League is composed of the debating associations of the University of Michigan, the University of Minnesota, Northwestern University, and the University of Chicago. Its purpose is to discuss, in public, leading questions of the day, and in this way develop ready and useful speakers.

The four universities are arranged in two groups for the semifinal debates, which are held the third Friday in January. On the second Friday in April in each year the winners from the groups meet in a final debate in the city of Chicago.

The League is guaranteed an annual endowment of $200, to be distributed as follows: $150 to the side winning in the final debate; $50 to the side losing.

Hamilton Carharrt Testimonial.—To encourage the interest in debating in the University Mr. Hamilton Carharrt, of Detroit, has established a testimonial of $150, to be divided equally among the debaters who represent the University in the Central Debating League. In 1903-1904 the testimonial was awarded to John Albert Rippel, John Chester Bills, and Clement Milton Holderman.

WISCONSIN-MICHIGAN DEBATE

The fourth debate arranged between the University of Michigan and the University of Wisconsin will be held in Madison, Wis., March 31, 1905.

Ferry Testimonial.—Through the generosity of Mr. Dexter M. Ferry, of Detroit, a testimonial of $150 has been provided, to be distributed equally among the debaters who represent the University in the Wisconsin-Michigan debate. In 1904 the testimonials for this debate were awarded, respectively, to Charles Edward Blanchard, Don Byron Colton, and Lavergne Clarence Amberson.

CUP DEBATE

In May, 1898, the Detroit Alumni Association presented the University Oratorical Association with a silver loving-cup, and requested that it be competed for annually by the Alpha Nu and Adelphi Societies in the Department of Literature, Science, and the Arts, and the Webster and Jeffersonian Societies in the Department of Law. The society which wins the cup the greatest number of times in twenty years is to hold it as a permanent trophy. The annual cup debate is held the second Friday in May. In these contests students who have previously won a University honor in debate, or have been members of a winning cup team, are ineligible to compete. In 1904 the cup debate was won by the Webster Society.

Alger Medals.—Senator Russell A. Alger contributes annually $75.00 for the purpose of furnishing appropriate medals for the Honor Debaters of the University. These medals are awarded to the six men who appear in the intercollegiate debates.

OTHER UNIVERSITY ORGANIZATIONS

Lecture Association.—The Students' Lecture Association provides each year, at a low price for admission, an attractive course of lectures.

Choral Union.—The Choral Union is an organization of students and others, for study and practice of choral music under the direction of the professor of music in the University, and for the promotion of general musical culture. Under its auspices, and with the cooperation of the University Musical Society,* the following course of concerts is announced for the year 1904-1905:

I. Symphony Concert. Pittsburg Orchestra, Emil Paur, Conductor.
II. Historical Recital, illustrating the music of the XVI and XVII Centuries on the instruments of the times: Arnold Dolmetsch.
III. Kneisel Quartette.
IV. Violon-cello Recital: Anton Hekking.
V. Song Recital: Muriel Foster.
VI, VII, VIII, IX, X, May Festival; a series of five concerts on three successive days in May.

The Columbian Exposition Organ, purchased for the University and now known as the Frieze Memorial Organ, in memory of the late Professor Henry Simmons Frieze, is used in this course of concerts.

Other Organizations.—There are several organizations of University officers and students established and maintained for the reading of papers and the holding of conferences on topics of interest that do not fall within the scope of ordinary class-room work; and some of these also aim to secure each year public addresses, by speakers of prominence, on subjects germane to the purpose of the organization.

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*The University Musical Society is a body corporate under the laws of the State of Michigan. It has no organic connection with the University, though its membership is restricted to past and present University officers and students. This society has established the University School of Music in Ann Arbor, in which systematic instruction is given in vocal and instrumental music, such as the University cannot undertake to provide. A series of ten chamber concerts is included in its annual programme. Catalogues of the school can be had by applying to Professor A. A. Stanley.

The students of the Department of Law arrange annually for a celebration of Washington's birthday. The address in 1904 was given by the Honorable John L. Webster, of Omaha, Neb.

ATTENDANCE AND DISCIPLINE

The State of Michigan extends the privileges of the University, with only moderate charges, to all persons of either sex who are qualified for admission. Thus it does not receive patronage, but is itself the patron of those who seek its privileges and its honors. It cannot, however, be the patron of idleness or dissipation. Its crowded classes have no room except for those who assiduously pursue the studies of their choice, and are willing to be governed in their conduct by the rules of propriety.

Students not in their places at the opening of the semester must present written excuses from their parents or guardians for the delay.

Such delinquencies as tardiness, absence, deficiencies, and offences against good order, in the several departments of instruction, are ordinarily dealt with by the instructor in charge of the department in which they occur. Flagrant cases are reported to the Faculty for adjudication.

Students are suspended or dismissed whenever, in the opinion of the Faculty, they are pursuing a course of conduct seriously detrimental to themselves or the University.

The following is a By-law of the Board of Regents:—

"Whenever any Faculty is satisfied that a student is not fulfilling, or likely to fulfill, the purpose of his residence at the University, or is for any cause an unfit member thereof, the President shall notify his parents or guardians, that they may have an opportunity to withdraw him, and if not withdrawn within a reasonable time, he shall be dismissed."

RELATION OF STUDENTS TO THE CIVIL AUTHORITIES

Students are temporarily residents of the city, and like all other residents, are amenable to the laws. If guilty of disorder or crime, they are liable to arrest, fine, and imprisonment. A rule of the University Senate provides that if a student is arrested, or is convicted of any offence by the civil authorities, he shall be cited to appear before the Faculty of the department in which he is matriculated, and shall be liable to suspension or expulsion.

FEES AND EXPENSES

Matriculation Fee.—Every student, before entering any department of the University, is required to pay a matriculation fee. This fee, which, for a citizen of Michigan, is ten dollars, and for a person who comes from any other state or country, twenty-five dollars, is paid but once, and entitles the student to the privileges of permanent membership in the University.

Annual Fees.—In addition to the matriculation fee, every student has to pay an annual fee for incidental expenses, and, in some departments, a small additional fee for special purposes. These fees are paid the first year of residence at the University, and every year of residence thereafter. Resident graduates are required to pay the same annual fees as undergraduates. The annual fees in the several departments of the University are as follows:

Department of Literature, Science, and the Arts: for Michigan students, thirty dollars; for all others, forty dollars. The fee required from graduate students who are granted the privilege of pursuing studies for an advanced degree *in absentia* is ten dollars for each year of registration. Students in this department who are pursuing a combined course, and, in consequence, are registered at the same time in one of the professional departments, are required to pay the annual fee due from students in such professional department.

Department of Engineering: for Michigan students, thirty-five dollars; for all others, forty-five dollars. The fee required from graduate students who are granted the privilege of pursuing studies for an advanced degree *in absentia* is ten dollars for each year of registration.

Department of Medicine and Surgery: for Michigan students, thirty-five dollars; for all others, forty-five dollars. The fee required from graduate students who pursue special advanced laboratory courses in this department is, in addition to the ordinary laboratory expenses, ten dollars for each course taken.

Department of Law: for Michigan students, thirty-five dollars; for all others, forty-five dollars. A library fee of two dollars a year is also required of all students in this department.

School of Pharmacy: for Michigan students, thirty-five dollars; for all others, forty-five dollars.

Homœopathic Medical College: for Michigan students, thirty-five dollars; for all others, forty-five dollars.

College of Dental Surgery: for Michigan students, thirty-five dollars; for all others, forty-five dollars. A further charge of three dollars a year is made to cover the cost of certain special supplies provided by the University.

The matriculation fee and the annual fees must be paid at the beginning of the college year. A by-law of the Board of Regents provides that no student or graduate shall be allowed to enjoy the privileges of the University until he has paid all fees that are due.

Holders of fellowships and of scholarships are required to pay the matriculation fee (if not already paid), the annual fees, the diploma fee, laboratory expenses, and other similar charges, the same as other students of the department in which their work lies.

Fee for Special Entrance Examinations.—In the Department of Literature, Science, and the Arts, and in the Department of Engineering, an applicant for admission who presents himself for the entrance examinations at a date later than that announced in the University Calendar is required to pay the University Treasurer a fee of five dollars before he can receive permission to take the examinations.

Laboratory Expenses.—Students who pursue laboratory courses of study are required to pay for the materials and apparatus actually consumed by them. The deposits required in advance are different for the different courses, ranging from one to twenty dollars. The laboratory expenses of students vary with their prudence and economy. In the chemical laboratory the average expense for each course is about one dollar and twenty cents a week.

Demonstration Courses.—A fee of ten dollars is charged for each of the demonstration courses given in the Department of Medicine and Surgery.

Gymnasium Expenses.—A charge of two dollars a year is made for the rental of a locker.

Diploma Fee.—The fee for the diploma given on graduation is ten dollars. The by-laws of the Board of Regents prescribe that no person shall be recommended for a degree until he has paid all dues, including the fee for diploma.

Fees for Summer Session.—(*a*) In the Department of Literature, Science, and the Arts: a uniform fee of fifteen dollars for tuition for the session is required of all students. (*b*) In the Department of Engineering: a fee of ten dollars is required of all students who take the summer field work in surveying. (*c*) In the Department of Medicine and Surgery and in the Department of Law: the fees for tuition vary with the amount and character of the work taken. Further information is given on subsequent pages in the chapter relating to the Summer Session.

Other Expenses.—Students obtain board and lodging in private families for from three to five dollars a week. Clubs are also formed in which the cost of board is from one dollar and a half to two dollars and a half a week. Room rent varies from seventy-five cents to two dollars a week for each student. The annual expenses of students, including clothing and incidentals, are, on the average, about three hundred and seventy dollars. The University does not undertake to furnish manual labor to students; yet a few find opportunities in the city for remunerative labor.

There are no dormitories and no commons connected with the University. Students on arriving in Ann Arbor can obtain information in regard to rooms and board by calling at the office of the Secretary of the University.

Department of Literature, Science, and the Arts

THE Department of Literature, Science, and the Arts owes its name to a provision in the legislative act under which the University was organized in the year 1837. Its aim is to cover the broad field of general university study of the ancient and the modern languages and literatures, of history, philosophy, mathematics, science, and the liberal arts, as distinguished from the more special work of the professional schools in engineering, medicine, law, pharmacy, and dentistry; and it offers a large number of courses of instruction, from which the student is allowed to choose such as he is qualified to pursue.

The Graduate School established in connection with this department is under the direction of an Administrative Council, appointed from the Faculty of the department.

A description of the Summer Session is given in a subsequent chapter.

The academic year extends from the Tuesday preceding the last Wednesday in September to the Thursday preceding the last Wednesday in June (September 26, 1905, to June 21, 1906).

REQUIREMENTS FOR ADMISSION

ADMISSION OF CANDIDATES FOR A DEGREE

[For admission to advanced standing, see page 58.]

[For admission of students not candidates for a degree, see page 59.]

[For admission of graduate students, see the chapter on the Graduate School, page 133.]

Applicants for admission as undergraduates must be at least sixteen years of age, and must have completed the requirements for admission, as here described. These requirements are stated in units, a unit meaning a subject of study pursued through a school year, with not less than four recitation periods each week. The subjects from which choice may be made, and the number of units which will be accepted in each subject, are as follows:

English Composition and Literature, 3 or 4 units.
Mathematics (Algebra and Geometry), 3 units.
Physics, 1 unit.
Greek, 2 units.
Latin, 2, 3, or 4 units.
French, 2, 3, or 4 units.
German, 2, 3, or 4 units.
History, 1, 2, or 3 units.
Physiography, 1 unit.
Chemistry, 1 unit.
Botany, 1 unit.
Zoology, 1 unit.
Biology, 1 unit.

Fifteen units are required for admission. These fifteen units must include three units in English Composition and Literature, three units in Mathematics, one unit in Physics, and at least two units in Latin, French, or German. The other six units may be selected by the applicant from the foregoing list.

Biology is defined as one half-year of botany and one half-year of zoology, hence it cannot be accepted from an applicant who offers at the same time either, or both, of those subjects.

Applicants who intend to pursue the study of Latin in the University should include in their preparation four units of Latin.

Scope of the Preparatory Work

The following descriptive outline indicates the amount of preparation expected in each of the subjects named:—

English Composition and Literature.—The three units in English composition and literature should cover the following subjects:—

Composition.—As preparation for this requirement, sustained and regular practice in writing is earnestly recommended. The student should prepare numerous written exercises throughout the four years of the high-school course, and a sufficient number of these exercises should be corrected by the teacher and revised by the student to secure the desired accuracy. The subjects upon which the student writes should not be drawn exclusively from literature; a considerable proportion of them should be so distributed as to give proper training in the various types of discourse, namely, description, narrative, argument, and exposition.

Rhetoric.—The student should be grounded in the essentials of rhetoric, but those principles should receive emphasis which are most likely to be of service to him in his practice in writing, such as the principles of sentential structure, paragraphing, and the outlining of the essay. The correction of stock specimens of bad English is not recommended, and will form no part of the entrance requirement.

Grammar.—The applicant should be prepared to state intelligently the essential principles of grammar and to explain the syntactical structure of any sentence encountered in his reading.

Reading of Classics.—The following books are recommended by the Joint Conference on Uniform Entrance Requirements in English:

1904 and 1905. For reading: Shakespeare's *Merchant of Venice* and *Julius Caesar;* The Sir Roger de Coverley Papers in *The Spectator;* Goldsmith's *The Vicar of Wakefield;* Coleridge's *The Ancient Mariner;* Scott's *Ivanhoe;* Carlyle's *Essay on Burns;* Tennyson's *The Princess;* Lowell's *The Vision of Sir Launfal;* George Eliot's *Silas Marner.* For study and practice: Shakespeare's *Macbeth;* Milton's *Lycidas, Comus, L'Allegro,* and *Il Penseroso;* Burke's *Speech on Conciliation with America;* Macaulay's *Essay on Addison* and *Life of Johnson.*

1906, 1907, and 1908. For reading: Shakespeare's *Merchant of Venice* and *Macbeth;* The Sir Roger de Coverley Papers in *The Spectator;* Irving's *Life of Goldsmith;* Coleridge's *The Ancient Mariner;* Scott's *Ivanhoe* and *The Lady of the Lake;* Tennyson's *Gareth and Lynette, Lancelot and Elaine,* and *The Passing of Arthur;* Lowell's *The Vision of Sir Launfal;* George Eliot's *Silas Marner.* For study and practice: Shakespeare's *Julius Caesar;* Milton's *Lycidas, Comus, L'Allegro,* and *Il Penseroso;* Burke's *Speech on Conciliation with America;* Macaulay's *Essay on Addison* and *Life of Johnson.*

It is expected that the applicant will have read these books appreciatively and will have made himself familiar with the subject-matter and the form of each work. The reading should be connected, in reasonable measure, with the lives and characters of the authors read and with the history of their times.

Although the books mentioned above are recommended as preparation for this part of the requirement, they are not prescribed. Books of equal merit, covering a similar range of literary types, will be accepted as equivalents.

It is recommended that in connection with the reading of classics, the memorizing of notable passages, in both prose and poetry, should form a regular exercise throughout the whole preparatory period. This is all-important for the development of a correct taste in language and literature.

History of English Literature.—The applicant who offers four units in English composition and literature should have pursued the study throughout the four years of the high school course. In addition to the foregoing requirement his preparation should include a systematic study of the outlines of English literary history. Due emphasis should be laid upon the division of the subject into periods; and the leading characteristics of each period should be studied and, as far as is practicable, illustrated by the reading of representative authors. Any of the current manuals of English literature may serve as the basis of this part of the work, which should occupy the third or fourth year of the course. The historical study should, however, be associated as closely as possible with the reading of classics.

Applicants who present themselves for examination will be asked to write two essays of not less than two hundred words each, one upon a subject drawn from the books in the foregoing list, and the other upon a subject drawn from experience or observation. The language of these essays must be grammatical and clear. The spelling, punctuation, and capitalizing must be correct. The applicant must show ability to discriminate in the use of words and to construct well-organized sentences and paragraphs. A topical outline should accompany each essay. The applicant should also be prepared to answer questions upon the fundamental principles of grammar and rhetoric. Additional questions in the history of English literature will be given to applicants for four units.

Mathematics.—The three units in mathematics required of all applicants include algebra through quadratics, and geometry, both plane and solid (including spherical). Beman and Smith's *Elements of Algebra,* and the same authors' *New Plane and Solid Geometry* are mentioned to indicate the scope and character of the work required.

Physics.—The required unit in physics includes an amount represented by Carhart and Chute's *High School Physics.* The instruction in the class room should be supplemented by work in the physical laboratory to the extent of at least one period a week throughout the school year.

Greek.—The two units in Greek should be made up of grammar, prose composition, and reading, as follows:

Grammar.—Goodwin's or Hadley's. The inflections must be thoroughly mastered.

Prose Composition.—Jones's *Exercises,* with special reference to the writing of Greek with the accents, and to the general principles of syntax. Woodruff's *Greek Prose Composition* is taken as an equivalent.

Reading.—Three books of Xenophon's *Anabasis* and two books of Homer.

The so-called continental sound of the vowels and diphthongs, and pronunciation according to the written accents are preferred.

Latin.—An applicant offering two units in Latin should have completed Jones's *First Latin Book* or an equivalent amount in some other introductory text-book; and should have read four books of Caesar's *Gallic War,* and one of the orations of Cicero.

An applicant offering three units in Latin should have completed the foregoing requirements for two units. He should, in addition, have read not less than five orations of Cicero or six books of Virgil's *Aeneid,* or an equivalent. And he should, further, be prepared to meet the requirement in Latin prose composition described below.

N. B.—This preparation is not sufficient to enable the student to enter Latin classes in the University; but arrangements are made whereby students who present two or three units of Latin may make up the full entrance requirement under private instruction.

The four units in Latin should be made up of grammar, prose composition, and reading, as follows:

Grammar.—A thorough preparation in the elements of etymology, syntax, and prosody.

Prose Composition.—Applicants will be asked to translate into Latin a passage of connected English narrative, based upon some portion of the Caesar or Cicero read. As a text-book, Jones's Collar's, Daniell's, or Bennett's is recommended. Special care should be taken with the training in prose composition.

Reading.—Four books of Caesar's *Gallic War;* six select orations of Cicero; and six books of Virgil's *Aeneid.* For any two books of the *Aeneid,* 1,500 lines of Ovid may be substituted. The books named may serve to indicate the amount and kind of text adapted to give the ability to read passages of moderate difficulty at sight, which is what the University requires.

The Roman method of pronouncing Latin is used at the University.

French.—The applicant who offers two units in French will be expected to pronounce French intelligibly and with some fluency, to understand French when spoken in simple phrases and about familar subjects, to read ordinary prose easily and accurately, and to write correctly in French simple sentences based on texts studied. This ability demands a firm grasp of the elements of grammar (such as the conjugation of the verb, both regular and irregular, the use of auxiliaries, the forms of the pronoun, the agreement of adjectives and participles, the main uses of the articles, and the order of words in the sentence), and such a familiarity with the structure of the sentence and common turns of expression and such command of vocabulary as may be given by the careful, well directed reading of three or four hundred pages of easy prose.

The applicant who offers three units in French should be able to read ordinary prose rapidly at sight, with clear understanding of the distinctions of tense and mode and all common points of syntax, to reproduce in simple but connected French the substance of a narrative or dramatic text, and to follow ordinary explanations and commentaries made orally in French. In acquiring this ability accent should be laid on the rapid understanding of the French phrase, whether it be addressed to the eye or the ear. Much should be read, spoken, and dictated. At least six hundred pages of prose should be read, and at the end it should not be too easy.

The applicant who offers four units in French should be able to read at sight any French not offering very unusual difficulties of vocabulary or syntax, to translate into French a passage of simple English, and to carry on a conversation in French upon a familiar subject. He should have read, in addition to what is required for three units, at least one thousand pages of French chosen from standard authors, and he should be able to answer questions on the content and meaning of the works read as well as upon the language in which they are written.

German.*—The applicant who offers two units in German should be able to pronounce German correctly and should be thoroughly familiar with the everyday facts of the grammar. He should have read about 300-350 pages of standard modern prose and should be able to take part in a simple conversation in German on topics drawn from the works read. He should also be able to translate easy English prose into German.

The applicant who offers three units in German should, in addition to the work described above, be prepared as follows: He should have read two classics selected from the works of Lessing, Goethe, and Schiller, and about 250 pages of standard prose fiction and history. He should have a good knowledge of German syntax and should be able to write a short essay on some subject taken from the works read. He should also be able to translate ordinary English into German and to express himself in German grammatically and with ease on topics connected with his reading.

The four units in German include the foregoing requirements and additional preparation as follows: The reading of five standard dramas (exclusive of those read in the third year) selected from the works of Goethe, Schiller, Lessing, Heinrich v. Kleist, and Grillparzer; a thorough command of German grammar, and the ability to speak and write German with considerable ease and correctness. The applicant should have written several longer essays on the works read.

History.—The requirement of one, two, or three units in history may be met by selections from the following list:

Ancient history to the year 800 A. D., one unit.
Mediæval and modern history, one unit.
English history, one unit.
United States history and government, one unit.

A year's work in general history, with the use of such a book as Myers's *General History,* will still be accepted as one unit, though it is believed that better results will be obtained if a year is given to ancient history down to the fall of the Roman Empire (or, preferably, to the year 800 A. D.), and a year to mediæval and modern history.

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*A fuller statement of the requirements in German may be found in the "Report of the Committee of the German Section of the Michigan Schoolmasters' Club on a Uniform High School Course in German." Copies of the report may be obtained by applying to the professor of German.

Physiography.—Dryer's *Lessons in Physical Geography,* Davis's *Physical Geography,* or Tarr's *New Physical Geography* is recommended as a text-book. The text-book work should be supplemented by conferences, field excursions, laboratory work in meteorology, and the reading of such books as Geikie's *Earth Sculpture,* Shaler's *Outlines of the Earth's History* and *Aspects of the Earth,* Russell's *Lakes of North America, Glaciers of North America, Volcanoes of North America,* and *Rivers of North America,* and Muir's *Mountains of California.* In connection with the laboratory work, Davis's *Elementary Meteorology* and Ward's *Practical Exercises in Elementary Meteorology* are recommended.

Chemistry.—The nature and extent of the requirement in this subject are indicated by the mention of Freer's *Elementary Chemistry* as a text-book, or an equivalent amount in Remsen's *Introduction to the Study of Chemistry.* The study of the text should be accompanied by laboratory work.

Botany.—The unit required of those who offer botany for admission is expected to include as much as a competent teacher, trained in laboratory methods, can accomplish with his classes in a year. No attempt is here made to indicate the exact extent of the ground to be covered, for the teacher should have large liberty in selecting material and topics as occasion requires; but it is recommended that one-half year be given to the form, structure, and habits of flowering plants, while the other half-year may be given to the natural groups of plants, physiology, and the adaptation of form and structure to environment.

The following text-books are recommended as offering numerous and helpful suggestions: Atkinson's *Elementary Botany;* Bailey's *Botany;* Barnes's *Plant Life;* Bergen's *Foundations of Botany;* Coulter's *Plant Relations and Plant Structures;* Spalding's *Introduction to Botany;* Stevens's *Introduction to Botany.* Ganong's *Teaching Botanist* is one of the most useful books for the teacher.

Zoology.—An applicant who offers a unit in zoology will be expected to have a knowledge of at least eight of the following animal types: 1 and 2. Two protozoa: Amœba, Paramœcium, Vorticella, Stentor, Volvox; 3. A sponge: Spongilla or Grantia; 4. A hydroid: Hydra, to be compared with a medusoid form; 5. An echinoderm: starfish or sea-urchin; 6. An annelid: the earthworm or the leach; 7. A crustacean: crayfish, lobster, or crab; 8. An insect: butterfly (including immature stages), grasshopper, cricket, cockroach, or other insect; 9. A mollusk: the fresh water mussel or one of the snails; 10. A fish: minnow or perch; 11. An amphibian: frog, toad, tree-toad, salamander (Amblystoma), or mudpuppy (Necturus).

These forms must be studied by the laboratory method. Laboratory work should be directed not merely toward a study of animal structure, but as far as practicable toward the study of habits and reactions. It should furnish the basis for the class room discussion of principles; especially of evolution. Of the four periods per week that must be given to the work, two at least should be laboratory periods of two hours each, and the other two should be given to recitations or other class exercises. Careful original notes and drawings must be presented by applicants as part of the examination.

The mention of the following books may serve to indicate the character of the work required: Needham's *Elementary Lessons in Zoology;* Davenport's *Introduction to Zoology;* Jordan and Kellogg's *Animal Life;* French's *Animal Activities.*

Biology.—One half of the work above outlined in botany, together with one half of that outlined in zoology, will meet the requirements in biology.

ADMISSION ON EXAMINATION

Applicants for admission who are not entitled to enter on diploma (see page 57) must take the entrance examination. They should register with the Dean, at his office in University Hall, the day before the examination begins. The office will be open for this purpose Tuesday, September 19, 1905, and Thursday, February 8, 1906, from 9 to 11, and from 2 to 5.

The examination in the several subjects will be in writing, and will be held in Tappan Hall in accordance with the schedules given below. Applicants presenting themselves too late for the scheduled examination are required to pay an examination fee of five dollars.

SCHEDULE OF EXAMINATIONS FOR ADMISSION, SEPTEMBER, 1905

	Wednesday Sept. 20	Thursday Sept. 21	Friday Sept. 22	Saturday Sept. 23	
Botany	10 A. M.	......	......	......	Room 8
History	2 P. M.	......	......	......	Room 8
Zoology	4 P. M.	......	......	......	Room 8
Geometry	......	8 A. M.	......	......	Room 8
French	......	10 A. M.	......	......	Room 12
Latin	......	2 P. M.	2 P. M.	......	Room 8
Latin	......	......	4 P. M.	......	Room 8
German	......	2 P. M.	2 P. M.	......	Room 12
Chemistry	......	4 P. M.	......	......	Room 8
Algebra	......	......	8 A. M.	......	Room 8
Greek	......	......	2 P. M.	......	Room 8
Physics	......	......	......	8 A. M.	Room 8
English Composition and Literature	......	......	......	10 A. M.	Room 8
Physiography	......	......	......	2 P. M.	Room 8

SCHEDULE OF EXAMINATIONS FOR ADMISSION, FEBRUARY, 1906

	Friday Feb. 9	Saturday Feb. 10	
Algebra	8 A. M.	......	Room 8
Geometry	8 A. M.	......	Room 8
Physiography	11 A. M.	......	Room 8
German	2 P. M.	......	Room 8
Botany	3 P. M.	......	Room 8
Zoology	3 P. M.	......	Room 8
History	4 P. M.	......	Room 8
Physics	......	8 A. M.	Room 8
English Composition and Literature	......	10 A. M.	Room 8
Latin	......	2 P. M.	Room 8
Greek	......	3 P. M.	Room 8
French	......	3 P. M.	Room 12
Chemistry	......	4 P. M.	Room 8

CONDITIONAL ADMISSION

An applicant who fails in some part of the examination may, at the discretion of the Faculty, be admitted conditionally; but any condition thus incurred must be removed at one of the next two regular examinations for admission. No student who has an admission condition outstanding at the beginning of his second year of residence will be allowed to enter his classes until such condition is removed.

ADMISSION ON DIPLOMA

The privilege of sending pupils for admission on diploma is limited to schools that have been approved by the Faculty. On request of the proper authorities, the Faculty designates a committee to visit a school and report upon its condition. If satisfied from the report of the committee that the school is taught by competent instructors, and is furnishing a good preparation to meet the requirements for admission, described on pages 49 to 56, then the Faculty places the school on the approved list for a period not exceeding three years (inclusive of the year of visitation); reserving, however, the right to require another inspection, if, within the period specified in each case, important changes affecting the course of study in the school, or the efficiency of the instruction, seem to make an examination necessary.

The superintendent of each approved school is expected to send to the President of the University, annually, at a date not later in the year than March first, a catalogue of the school; or, if no catalogue is published, he is expected to send a statement giving the names of the teachers, the number of pupils, and a description of the courses of study.

Graduates of schools that have been placed by the Faculty on its approved list are admitted without examination on presenting a recommendation, signed by the principal of the school, certifying that they have satisfactorily done all the work required for admission. The recommendation must be made on a blank form furnished by the University.

The principals of approved schools are urged to send to the Dean, at as early a date as possible, the recommendation of each graduate intending to enter this department of the University at the beginning of the ensuing college year. If, on inspection, the recommendation is found satisfactory, the Dean will forward to the applicant a certificate, entitling him to admission without examination. Such certificate, or an original recommendation, must be presented to the Dean at his office in University Hall as early as the day preceding the opening of the academic year. The office of the Dean will be open for the registration of applicants for admission on diploma from 9 to 12 and from 2 to 5, Saturday, September 23, and Monday, September 25, 1905.

ADMISSION TO ADVANCED STANDING

1. A student who brings a certificate of standing from an approved college or university, showing that he has satisfactorily completed at least one year of the curriculum of the institution from which he comes, may be admitted without examination to equal standing in this department of the University. A graduate of one of the stronger courses of an approved normal school, who brings an official certificate explicitly describing the extent and character of his work, may be given, without examination, such advanced standing as is justified by the course he has completed.

The certificates above referred to must be presented to the

Dean of the department as early as the fifteenth of October (or, if the student enter at the beginning of the second semester, as early as the first of March).

2. All other applicants for advanced standing must present to the Registrar as early as the fifteenth of October (or, if they enter at the beginning of the second semester, as early as the first of March) a statement showing the amount of work done in the subjects in which credit is asked. The Registrar will thereupon furnish a blank form for presentation to the professors in charge of the several subjects designated in the blank, who will by examination determine the amount of credit to which the applicant is entitled.

Credits must be secured and returned to the Registrar as early as the first of November (or, if the student enter at the beginning of the second semester, as early as the fifteenth of March). An account once closed cannot be reopened without special permission of the Dean.

ADMISSION OF STUDENTS NOT CANDIDATES FOR A DEGREE

Persons over twenty-one years of age who wish to pursue studies in this department, without becoming candidates for a degree, may be admitted as special students, provided they pass an examination in English, and show that they are qualified to pursue profitably the studies they may desire to take up. In the examination in English applicants will be asked to write brief essays on subjects that will be assigned, and to answer questions on the rudiments of English grammar. The examination will be held in Room 8, Tappan Hall, at 10 A. M., Saturday, September 23, 1905. The Dean's office will be open for the registration of applicants, Friday, September 22, from 9 to 11 and from 2 to 5.

Should a special student subsequently become a candidate for graduation, he must pass all the examinations for admission required of such a candidate, at least one year before the time when he proposes to graduate.

Special students who wish credit for studies pursued before admission are referred to the rules relating to advanced standing given above.

REQUIREMENTS FOR GRADUATION

The degree of Bachelor of Arts is conferred upon students who have been in residence for at least one academic year, and have secured one hundred and twenty hours of credit. This credit must include Courses 1 and 2 in Rhetoric. With this restriction the student may select from the work offered in the department such courses as he is qualified to pursue, subject only to the following rules:

RULES GOVERNING ELECTION OF STUDIES

1. *First-Year Elections.*—Courses 1 and 2 in Rhetoric must be taken the first year of residence, unless for exceptional reasons a postponement is allowed by the Committee on Elections. In addition to the work in Rhetoric, first-year students are expected to elect, each semester, three of the following courses, making a total of fifteen hours a week:

Greek, 1, 2 (or A, B, C).
Latin, 1, 2.
French, 1, 2 (or 3, 4).
German, 1, 2 (or 3, 4).
History, 1, 2.
Mathematics, 1, 2.
Physics, 1, 2.
Biology, 1, 2.
Chemistry, 1 and *1a*, 2 and *2a*.

If a student has credit either toward admission or toward graduation, for Courses 1 and 2, in either French or German, he may elect Courses 3 and 4. If his credit includes second-year French or second-year German, he may elect the work of the third year.

In no case may courses not on this list be elected by first-year students without the permission of the Committee on Elections. This permission must be obtained before the election blank is handed in. The committee may be consulted between 4 and 6 daily, from Tuesday to Saturday of the first week of the semester (September 26-30, 1905), in Room B, University Hall.

2. *Number of Hours Allowed.*—In accordance with the provisions of the foregoing rule, first-year students are required to elect fifteen hours a week. For all except first-year students the maximum number of hours a week that may be elected without special permission is sixteen, the minimum twelve.

On special request students of exceptional proficiency may be granted additional hours, but in all cases such requests must be made in writing on a blank form provided by the Registrar, and must be deposited in the Registrar's box on or before the first Saturday of the semester in which the additional work is desired.

All requests for permission to take less than the minimum number of hours must be made in writing, stating the proposed election and the reasons therefor, and must be presented to the Dean on or before the first Saturday of the semester for which the election is made.

When students are allowed to make up preparatory studies in the Ann Arbor High School a corresponding reduction is made from the maximum number of hours allowed them in the University.

3. *Manner of Electing.*—Election blanks, duly filled out and enumerating all the courses the student intends to take, must be deposited in the Registrar's box on or before 6 P. M. of the first Saturday of each semester. No credit is given for courses not properly elected. No student is allowed to elect merely a part of a course.

Special students are required to submit their elections to the Committee on Elections for revision and approval, before depositing the blank in the Registrar's box. No such blank is regarded as valid unless so approved.

4. *Change of Election.*—After the first Saturday of each semester no study can be taken up or dropped without special permission of the Administrative Board. All requests for permission to take up or to drop studies must be made in writing on specially provided blank forms and in accordance with the rules printed thereon.

RULES RELATING TO EXAMINATIONS AND CONDITIONS

1. Students are required to take the examinations in all courses elected except such as they may have dropped with consent of the Administrative Board.
2. No student absent from a regular examination without an excuse from the Dean is allowed to take such omitted examination before the next regular examination in that course.
3. Students from other departments who absent themselves from courses elected in this department forfeit the privilege of electing courses in this department.
4. Students are in no case examined before the time set for the examination of the class in which the work has been done.
5. Any student reported as passed "conditionally" in any course, must remove the condition within one year from the date of the examination in which it was incurred; otherwise, the course passed conditionally is regarded and treated as "not passed."

6. If a student is reported "not passed" in any course, he can receive no credit for that course unless it has been again elected and pursued as though it had not been elected before.

7. Any student who desires to remove a condition incurred at a semester examination, or who desires to take a class examination from which he was absent at the regular time, must obtain from the Registrar a blank form for presentation to the instructor in charge of the examination. The blank, when filed, must be deposited by the student with the Registrar within one week from the date entered upon it by the examiner.

COURSES OF INSTRUCTION

The Courses of Instruction are subject to change from time to time. At the opening of each academic year, a special Announcement is issued, giving full information concerning the courses offered for the year, and the days, hours, and places of lecture, recitation, and laboratory work. From the courses offered in the various branches of learning, the student is allowed to make his choice, under regulations prescribed by the Faculty (see page 60).

The courses announced for the year 1904-1905, together with a few that may be expected in 1905-1906, are described below. The amount of credit toward graduation assigned to each course is indicated by the expressions *one hour, two hours,* etc.

For convenience of reference, a few courses are included that are not ordinarily open to undergraduates, and for some of these no hours of credit are given.

GREEK*

Courses A, B, and C, are designed for those who have had no opportunity to take Greek before admission, or have not been able to complete the entrance requirements in Greek. A credit of four hours will be given for each one of these courses satisfactorily completed. Students intending to enter upon the study of Greek at any time in their course will find it to their advantage to do so in their first year. Courses 1 and 2 must precede all the other regular University courses in Greek.

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*School of Classical Studies at Athens.—This University, through the generosity of some of its friends, is a contributor to the support of the American School of Classical Studies at Athens. The school affords facilities for archæological and classical investigation and study in Greece, and graduates of the Department of Literature, Science, and the Arts of this University are entitled to all its advantages without expense for tuition. Professor M. L. D'Ooge was director of the School in 1886-7.

Courses *6a, 6b,* and 19, in addition to Courses 1, 2, 4, 5, 16, and at least two hours more chosen from other courses, are required for the Teacher's Diploma in Greek, or for a recommendation to teach Greek.

FIRST SEMESTER

A. Elementary Greek. This course, with its continuation, Course B in the second semester, enables the student to take up Course 1 (Lysias) the following year. *Four hours.* Dr. STUART.

C. Elementary Greek, continued. Xenophon's *Anabasis* and Greek prose writings. This course is designed for those who have completed Course 1 in the Summer School, or one year of beginning Greek in a preparatory school. Those who satisfactorily complete this course will be admitted to Course 2 (Homer) in the second semester. *Four hours.* Dr. STUART.

1. Selected Orations of Lysias; Xenophon's *Symposium.* Two sections. *Four hours.* Professor PATTENGILL and Dr. STUART.

4. Demosthenes. Studies in the Attic Orators. *Four hours.* Professor PATTENGILL.

6a. Teachers' Course. Lectures on Greek grammar with special reference to the origin of inflectional forms. *Two hours.* Professor D'OOGE.

7b. Seminary in Tragedy. Studies in Aeschylus. The Oresteian Trilogy is read, with special reference to the dramatic art of the poet. *Three hours.* Professor D'OOGE.

[*7a.* Seminary in Tragedy. Studies in Sophocles, with special reference to the dramatic art of the poet, and to the antiquities of the Greek stage. *Three hours.* Professor D'OOGE.
Omitted in 1904-1905.]

8. History of Greek Art from the Beginning to the Roman Period. Gardner's *Handbook of Greek Sculpture* and Tarbell's *History of Greek Art* are made the basis of a more general study. *Three hours.* Professor D'OOGE.

Course 8 is open to all students who have completed the first year, irrespective of the study of Greek.

[10. Introductory Course in Plato. The *Apology* and the *Crito,* and selections from the *Phaedo.* *Three hours.* Professor D'OOGE.
Omitted in 1904-1905.]

[11. Herodotus. Books VI and VII, and a study of the Persian War. *Three hours.* Professor PATTENGILL.
Omitted in 1904-1905.]

12. Thucydides and a study of the Peloponnesian War. *Three hours.* Professor PATTENGILL.

18. Plato and Aristotle. Selections from the *Gorgias* and the *Nicomachaean Ethics.* *Two hours.* Professor D'OOGE.

24. Greek Epigraphy. A study of the local alphabets and exercises in reading inscriptions written in them. *Two hours.* Assistant Professor SANDERS.

SECOND SEMESTER

B. Elementary Greek. Continuation of Course A. Xenophon's *Anabasis* and Greek prose writing. *Four hours.* Dr. STUART.

2. Homer. *Odyssey.* Two sections. *Four hours.* Professor PATTENGILL and Dr. STUART.

5. Greek Tragedy. Euripides: *Iphigenia in Tauris. Three hours.* Professor PATTENGILL.

6*b*. Greek Prose Composition. This course is intended for those who are expecting to teach Greek. It affords constant practice in writing connected narrative in Greek, and includes an intensive study of the syntax and style of Xenophon. The exercises for 1904-1905 are based on Books II and III of the *Cyropaedia. Two hours.* Dr. STUART.

9. The Bucolic Poets. The *Idyls* of Theocritus, Bion, and Moschus. *Three hours.* Professor PATTENGILL.

16. The History of Greek Literature. Lectures and recitations. *Two hours.* Professor D'OOGE.

Course 16 is designed to give a general survey of Greek Literature from Homer to the Roman Period, and may be elected by all students, irrespective of the study of Greek.

[17. Aristophanes. The *Clouds,* the *Birds,* and the *Frogs. Three hours.* Professor PATTENGILL.
Omitted in 1904-1905.]

19. Introduction to the critical study of Homer. Lectures on the history of the Homeric text, and a study of the Homeric language and verse. A critical reading and interpretation of portions of the *Iliad. Three hours.* Professor D'OOGE.

Course 19 is especially intended for those who are preparing themselves to teach Greek.

23. The *Athenian Constitution* of Aristotle, with special reference to the judicial and political antiquities of Athens. *Two hours.* Professor D'OOGE.

[24. Pindar. The *Olympian* and *Pythian Odes.* Selections from Bacchylides. *Three hours.* Professor D'OOGE.
Omitted in 1904-1905.]

25. Greek Palæography. *Two hours.* Assistant Professor SANDERS.

[26. Lucian. The *Dream, Charon, Timon, Dialogues of the Gods, Dialogues of the Dead,* and other minor pieces. Discussion of the life and times of Lucian. *Two hours.* Professor D'OOGE.
Omitted in 1904-1905.]

[27. Seminary in Plato's *Republic. Two hours.* Professor D'OOGE.
Omitted in 1904-1905.]

[29. Ancient Athenian Life. Illustrated by means of lantern slides. *One hour.* Professor D'OOGE.
Omitted in 1904-1905.]

30. Modern Greek. Practical introduction and practice in reading specimens of modern Greek literature. *Three hours.* Professor D'OOGE.

LATIN

Courses 1, or 1*a*, and 2 must precede all the rest, and should be taken in the first year, if the student plans to pursue any of the more advanced courses.

In order to increase the range of work offered to advanced students, several of the courses in Latin are given in alternate years, new courses being introduced as opportunity is thus afforded.

The requirement for the Teacher's Diploma in Latin is *twenty-five hours* of work in the department, selected after consultation with the professor in charge.

Courses 1, 2, 3, 4, 5, 6, 7, and 23 are intended primarily for undergraduates. Courses 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, and 22 are for graduates and undergraduates. Courses 18*b*, 24, 25, 26, 27, 28, 29, and 30 are exclusively for graduates.

FIRST SEMESTER

1. Cicero, *De Senectute, De Amicitia;* Selections from Catullus; Latin Writing. Three sections. *Four hours.* Professor W. DENNISON, Assistant Professor SANDERS, and Dr. MEADER.

1*a*. Cicero, *De Senectute, De Amicitia;* Selections from Catullus. *Four hours.* Dr. STUART.

1*b*. Latin Writing. Three sections. *One hour.* Professor W. DENNISON, Assistant Professor SANDERS, and Dr. MEADER.

3. Horace. Selections from the *Odes, Satires,* and *Epistles.* Studies in Roman Antiquities. Two sections. *Four hours.* Professor DRAKE and Assistant Professor SANDERS.

3*a*. Horace. Selections from the *Odes, Satires,* and *Epistles.* *Three hours.* Professor DRAKE.

[5. The *Letters* of Pliny. Interpretation of selected letters, with a study of Roman literary and social conditions at the end of the first century. Professor W. DENNISON.
Omitted in 1904-1905.]

[5*a*. The Private Life of the Romans. Lectures on Roman life, with a study of the social conditions of antiquity; illustrated by stereopticon slides. Professor W. DENNISON.
Omitted in 1904-1905.]

5*b*. Martial; Petronius; *Trimalchio's Banquet.* With special reference to the private and the social life of the Romans. *Two hours.* Professor W. DENNISON.

5*c*. Comparative Linguistics. A general introduction to comparative Indo-European and classical philology. *One hour.* Dr. MEADER.

7. The *Germania* and *Agricola* of Tacitus. Interpretations and lectures. *Two hours.* Professor DRAKE.

7*a*. History of Roman Law. Lectures. A sketch of the development of Roman private law and of the relations of private to public law up to the death of Justinian; some account of Roman law in the Middle Ages; and a discussion of the relations of Roman law to modern systems of law. *One hour.* Professor DRAKE.

9. Rapid Reading of Easy Latin. The aim of this course is to train the student in the reading of Latin, without the use of the dictionary. *Two hours.* Dr. MEADER.

[9*a*. The Pseudo-Cæsarian *Bellum Africanum* and *Bellum Hispaniense*. Interpretation of the text, and critical study of their syntactical and stylistic peculiarities, accompanied by continual comparisons with the usage of Cæsar. Dr. MEADER. Omitted in 1904-1905.]

11. Latin Writing. Introductory to Course 12. The principal aim is to secure correctness of expression and a feeling for idiom. Three sections. *Two hours.* Professor W. DENNISON, Assistant Professor SANDERS, and Dr. MEADER.

13. Juvenal. Interpretations and lectures. *Two hours.* Professor KELSEY.

[13*a*. Lucretius. Interpretations and lectures. Professor KELSEY. Omitted in 1904-1905.]

15. Introduction to Latin Palæography. Lectures on the various styles of writing found in Latin manuscript, with exercises in reading from facsimiles. *Two hours.* Assistant Professor SANDERS.

17. Latin Grammar. Lectures on the phonology and morphology of the language. *Two hours.* Assistant Professor SANDERS.

17*a*. Vulgar Latin. Lectures on the *sermo cottidianus* and *sermo plebeius,* with special reference to the Romance languages. Interpretation of selected authors and inscriptions. *One hour.* Assistant Professor SANDERS.

19. Roman Political Institutions. Lectures. This course deals with the Roman constitution up to and including the Augustan age. Special attention is given to the reasons for the failure of the constitution of the Republic, and to the establishment of the Principate of Augustus. Points of resemblance to the American constitution are noted. *One hour.* Professor DRAKE.

[19*a*. Proseminary in Roman Political Institutions. Letcures, topical studies, and reports on selected themes in Roman constitutional law and history. Professor DRAKE.
Omitted in 1904-1905.]

21. Teachers' Course. Interpretation of Cæsar's *Gallic War,* with studies in the syntax and military antiquities. *Two hours.* Professors Kelsey and W. Dennison.

21*a*. Teachers' Course. Lectures on the *Gallic War.* *One hour.* Professor Kelsey.

21*b*. Studies in Cæsar. *Two hours.* Professors Kelsey and W. Dennison.

23. The Antiquities of Pompeii. Lectures, illustrated by the stereopticon. A summary of the results of excavation and investigation at Pompeii is presented, with special reference to the contribution made by the discoveries to our knowledge of ancient art and Roman private life. *One hour.* Professor Kelsey.

25. Reports on the Progress of Research. Analysis and criticism of important articles in the domain of the Latin and Greek languages and literatures, Latin and Greek grammar and lexicography, Greek and Roman history, archæology, and antiquities, by members of the classical faculty and members of the Latin and Greek seminaries. *One hour.*

27. Seminary. Roman Satire, with special studies in Juvenal. *Two hours.* Professor Kelsey.

Course 27 is open only to graduate students.

29. Study of Roman Coins. *Hours of work in Coin Room assigned by special arrangement.* Professor Kelsey.

SECOND SEMESTER

2. Livy, Book I. Plautus. Terence. Four sections. *Four hours.* Professor W. Dennison, Assistant Professor Sanders, Dr. Meader, and Dr. Stuart.

4. Roman Literature. Selections from representative authors; lectures. Three sections. *Four hours.* Professor Drake and Assistant Professor Sanders.

4*a*. General Course in Roman Literature. Lectures and topical studies. This course is designed for students interested in the general subject of literature, who do not wish to make an intensive study of Latin. No knowledge of Latin is required. The Roman literature is treated in its broad relation to the Greek literature and to modern literature. Three sections. *Two hours.* Professor Drake and Assistant Professor Sanders.

4*b*. Selections from representative Latin authors. Three sections. *One hour.* Professor Drake and Assistant Professor Sanders.

6. Christian Latin. Interpretation of selections from the early Latin writers of the Christian church, with illustrative lectures upon Christian archæology and antiquities. *Two hours.* Dr. Meader.

6*a*. Roman Comedy. Selected plays of Plautus and Terence. *Two Hours.* Dr. Meader.

Of Courses 6 and 6*a*, that one will be given for which the larger number of students apply.

6*c*. Comparative Linguistics. Continuation of Course 5*c*. Dr. Meader.

8. Roman Law. Lectures and recitations. An outline of the fundamental principles of Roman law. Special emphasis is placed on points of Roman law which illustrate principles of English law. Sohm's *Institutes of Roman Law*. *Two hours.* Professor Drake.

8*a*. Modern Roman Law. Lectures and recitations. A sketch of the history of Roman law from the time of Justinian to the present, with especial reference to the influence of Roman law on the law of Spain and the Spanish colonies; followed by an outline of the general principles of Modern Roman law as embodied in modern codes. *Two hours.* Professor Drake.

8*b*. Advanced Course in Roman Law. A study of selected titles of the Digest of Justinian. *Two hours.* Professor Drake.

[10. Roman Art. Elements of Roman archæology: sculpture and painting in the Roman period. Illustrated lectures. Professor Kelsey.

Omitted in 1904-1905.]

10*a*. The Topography and Monuments of Ancient Rome. Lectures, in part illustrated. *Three hours.* Professor Kelsey.

12. Latin Writing. Advanced course, with lectures on Latin style. Three sections. *Two hours.* Professor W. Dennison, Assistant Professor Sanders, and Dr. Meader.

14. Catullus, Tibullus, and Propertius. Interpretations, with lectures on the Roman elegy. *Two hours.* Assistant Professor Sanders.

[14*a*. Virgil. *Georgics*. Interpretations, and lectures on the Roman writers on agriculture. Assistant Professor Sanders.

Omitted in 1904-1905.]

16. Latin Inscriptions. Reading of inscriptions of different periods from the De Criscio collection and from reproductions. Interpretation of selected inscriptions. *Two hours.* Professor W. Dennison.

[16*a*. The *Letters* of Cicero. Interpretation of selected letters, with a study of Roman manners and political conditions at the end of the Republic. Professor W. Dennison.

Omitted in 1904-1905.]

18. Latin Grammar. Lectures on syntax and style. The forms and the meanings of the more important syntactical types are treated, and special attention is given to the discussion of the factors (subjective and objective) that condition their development. The continuity of the Græco-Roman tradition in matters of style is epecially dwelt upon. *Two hours.* Dr. Meader.

18*a*. Vulgar Latin. Continuation of Course 17*a*. *One hour.* Assistant Professor SANDERS.

[18*b*. The Italic Dialects. Lectures and recitations on the phonology, morphology, and syntax of Oscan and Umbrian. Interpretation of inscriptions. Dr. MEADER.
Omitted in 1904-1905.]

20. Roman Administrative Law (Provincial Administration). Lectures. A short account of the geographical extension of Rome through her conquests, of her system of provincial administration, of the effect of provincial development upon the life of the state, of the reorganization of the administration by Augustus and by Diocletian; and a sketch of the later history of the provinces. *One hour.* Professor DRAKE.

22. Teachers' Course. Virgil. *Two hours.* Professors KELSEY and W. DENNISON.

22*a*. Teachers' Course. Lectures on Virgil. *One hour.* Professor KELSEY.

22*b*. Studies in Virgil. *Two hours.* Professors KELSEY and W. DENNISON.

24. Reviews in Roman Literature, Latin Grammar, and Roman Political Institutions. Professor DRAKE and Dr. MEADER.
Course 24 is designed especially for graduate students.

26. Reports on the Progress of Research. Continuation of Course 25. *One hour.*

28. Seminary. Roman Satire, with special studies in Juvenal. Continuation of Course 27. *Two hours.* Professor KELSEY.
Course 28 is open only to graduate students.

30. Study of Roman Coins. *Hours of work in Coin Room assigned by special arrangement.* Professor KELSEY.

SANSKRIT AND COMPARATIVE LINGUISTICS

The courses in Sanskrit offered below are designed especially for students of the languages, ancient and modern, and are correlated with the courses in Comparative Linguistics, but individual aid and direction will be given to any who wish to devote themselves to other aspects of the study.

Before beginning the study of Sanskrit, the student should have pursued courses in two of the three subjects, Greek, Latin, and German, for at least four semesters. The courses in Comparative Linguistics are open to students of modern as well as of ancient languages.

FIRST SEMESTER

1. Beginners' Course. Grammar, and exercises in translation and composition. Text-books: Whitney's *Grammar* and Lanman's *Sanskrit Reader. Two hours.* Dr. MEADER.

3. Advanced Reading: Kalidasa's *Cakuntala.* Elements of Prakrit. *One hour.* Dr. MEADER.

5*c*. Comparative Linguistics. A general introduction to comparative Indo-European and classical philology. Study of the relationships, clasification, and general characteristics of the Indo-European languages, and discussion of the main questions of comparative phonology, morphology, and syntax. A knowledge of Sanskrit is not required. Lectures and recitations. *One hour.* Dr. MEADER.

SECOND SEMESTER

2. Interpretation of selections contained in Lanman's *Sanskrit Reader,* with elementary studies in the comparative morphology of the more important cognate languages. *Two hours.* Dr. MEADER.

[4. Advanced Reading: Selections from the *Vedas.* *One hour.* Dr. MEADER.
Omitted in 1904-1905.]

6*c*. Comparative Linguistics. Continuation of Course 5. *One hour.* Dr. MEADER.

HEBREW

FIRST SEMESTER

1. *Genesis,* Baer and Delitzsch's Text. Gesenius's *Hebrew Lexicon.* Craig's *Hebrew Word Manual.* Gesenius's *Hebrew Grammar,* edited by Kautzsch, translated by Collins, twenty-sixth edition. *Three hours.* Professor CRAIG.

3. The Minor Prophets, *Amos, Hosea,* and *Isaiah,* Chaps. I-XXXV. *Two hours.* Professor CRAIG.

4. Prophetic Literature. *Isaiah,* Chaps. XL-LXVI, and study of the modern literary criticism of the *Book of Isaiah.* Text-books: *Hebrew Bible,* Driver's *Hebrew Moods and Tenses.* Professor CRAIG.

SECOND SEMESTER

2. *Deuteronomy, Joshua, I Samuel, Ruth, Jonah.* Theile's *Biblia Hebraica.* Gesenius's *Hebrew Lexicon.* Müller, *Outlines of Hebrew Syntax.* *Three hours.* Professor CRAIG.

5. The *Book of Job,* including study of the literary structure and critique of the dominant ideas. Text-books: Baer and Delitzsch's Text and Haupt's Polychrome edition (text by Siegfried). *Two hours.* Professor CRAIG.

ASSYRIAN

FIRST SEMESTER

1. Introduction to Easy Historical Inscriptions from the Ninth Century B. C., with study of the grammar. Text-book: Delitzsch's *Assyrische Lesestücke,* vierte Auflage. *Three hours.* Professor CRAIG.

3. The Babylonian Stories of Creation; the Deluge and the War of Marduk against Tiâmat; lectures on the Cosmology of the Babylonians; Inscription of Tiglathpileser I, cir. 1120 B. C. *Two hours.* Professor CRAIG.

SECOND SEMESTER

2. Historical Inscriptions. Selections from the cuneiform inscriptions of Western Asia (R. I-V). *Three hours.* Professor CRAIG.
4. Religious Literature. Texts: King's *The Prayers of the Lifting up of the Hand,* and Craig's *Religious Texts. Two hours.* Professor CRAIG.

ARABIC

FIRST SEMESTER

1. Introductory Course. Grammar and reading. Text-books: Socin's *Arabic Grammar* (English ed.) and Brünnow's *Chrestomathy. Two hours.* Professor CRAIG.
2. Selected Suras from the *Quran,* with introductory lectures on the life of Muhammed and Muhammedanism. *Two hours.* Professor CRAIG.

ARAMAIC, SYRIAC, AND ETHIOPIC

Courses in Aramaic, Syriac, and Ethiopic are given to students of advanced standing. The Aramaic parts of the *Old Testament* (*Dan.* 2:4-7:28; *Ezra* 4:8-6:18; and 7:12-26) are read in conjunction with the study of Aramaic grammar. Hebrew, Assyrian, Arabic, and Aramaic should, however, ordinarily be pursued before taking up Syriac and Ethiopic.

SEMITIC HISTORY AND LITERATURE

FIRST SEMESTER

1. Lectures. The beginning of history and civilization, and the history of Babylonia and Assyria, from the earliest historical period, cir. 4500 B. C., down to the Fall of Nineveh and Babylon. *Two hours.* Professor CRAIG.

   The lectures are illustrated by 200 lantern views, numerous photographs, photolithographs, and original tablets and casts.
2. The History of Israel and Judah from The Conquest to the Fall of the Northern Kingdom under Sargon, 722 B. C. *Two hours.* Professor CRAIG.
4. The Religion of the Semites. A general study of Semitic religion, with more especial attention to the religion of the Hebrews and of the Babylonians. Especially designed for students of theology and philosophy. *Two hours.* Professor CRAIG.

5. Study of the Hexateuch—*Genesis* to *Joshua* included. The literary origin of these books and the conclusion of modern *Old Testament* scholarship respecting them. The history of the literary study of the Pentateuch, showing the various steps in the long process of investigation which has resulted in the conclusions now accepted by scholars irrespective of their theological attitude. The arguments in support of the literary analysis into the four underlying documents: *The Yahwist,* or Judæan of the Ninth Century, *The Elohist* or *Ephraimite* of the Eighth Century, *The Deuteronomic Code,* on which the reformation of Josiah was based in the last quarter of the Seventh Century, and *The Priest's Code* of the Fifth Century. *Two hours.* Professor CRAIG.

8. The Study of the Minor Prophets, Amos and Hosea, and of the prophecies of Isaiah (*Isa.,* Chapters 1-35) and of Isaiah's younger contemporary, Micah. *Two hours.* Professor CRAIG.

SECOND SEMESTER

3. The History of Judah from the Fall of the Northern Kingdom to the Babylonian Exile, 586 B. C., and of the Jewish State from (1) the Exile to the establishment of the Congregation under Ezra, 444 B. C., (2) from Ezra until Alexander of Macedon, 336 B. C., (3) from Alexander until Antiochus IV, 175 B. C., (4) from Antiochus IV to the destruction of the state with the Fall of Jerusalem, 70 A. D. *Two hours.* Professor CRAIG.

6. The Study of *Deutero-Isaiah* (*Isa.,* Chapters 40-66), *Jeremiah, Jonah, Nahum,* and *Daniel.* *Two hours.* Professor CRAIG.

7. The Study of the *Wisdom Literature* of the *Old Testament,* with special discussion of the *Book of Job*; its kinship to and contrasts with the great skeptical dramas of other literatures: The *Prometheus* of Aeschylus, Goethe's *Faust,* and Shakespeare's *Hamlet.* *Two hours.* Professor CRAIG.

HELLENISTIC GREEK

FIRST SEMESTER

[1. *New Testament.* The *Acts of the Apostles,* including grammatical study of the peculiarities of Hellenistic Greek, and historical introduction to the Apostolic period. Text-books: Westcott and Hort's *Greek New Testament,* revised edition, with introduction by Ph. Schaff; Winer's *New Testament Grammar;* Blass's *New Testament Grammar;* Thayer's *Greek-English Lexicon.* *Two hours.* Professor CRAIG.
Omitted in 1904-1905.]

2. The Gospels according to Mark, Luke, and John, including grammatical study in Hellenistic Greek. Text-books as in Course 1. *Two hours.* Professor CRAIG.

SECOND SEMESTER

[3. *I Corinthians, II Corinthians.* Text-books the same as in first semester. *Two hours.* Professor CRAIG.
Omitted in 1904-1905.]

4. *I* and *II Thessalonians, Ephesians, Colossians. Two hours.* Professor CRAIG.

FRENCH

Courses 1, 2, 3, and 4 must precede all others. Courses 5 to 14, inclusive, are open to students who have completed Courses 1 to 4, or an equivalent. Courses 15-31 are advanced courses for undergraduates and graduates. Candidates for the Teacher's Diploma in French are advised to take Courses 5, 6, 7, 8, 21, 22, 24, 25, 26.

FIRST SEMESTER

1. Elementary Course. Grammar and easy reading, with practice in speaking. Eight sections. *Four hours.* Professors CANFIELD and LEVI, Assistant Professors DE PONT and EFFINGER, Dr. THIEME, and Mr. PECK.

1*a*. Elementary Course. Grammar and reading, designed especially for students wishing to acquire as rapidly as possible the ability to read French. Two sections. *Four hours.* Dr. HAMILTON.

3. Modern Prose and Plays, with practice in speaking and writing French. Continuation of Course 2. Six sections. *Four hours.* Assistant Professors DE PONT and EFFINGER, Dr. THIEME, Mr. PECK, Dr. HAMILTON, and Dr. WAGNER.

3*a*. French Conversation. Stress is laid on the acquirement of a good pronunciation and a correct accent. *One hour.* Assistant Professor DE PONT.

5. Advanced Prose Composition. Four sections. *Three hours.* Assistant Professor DE PONT, Dr. THIEME, and Dr. WAGNER.

7. The Drama of the Seventeenth Century; Corneille, Molière, Racine. *Three hours.* Assistant Professor EFFINGER.

9. French Society and Culture in the Sixteenth, Seventeenth, and Eighteenth Centuries. A survey of the principal factors that contributed to the formation, development, and decay of the classical ideal in French literature. *Two hours.* Dr. THIEME.

9*a*. French Historians. Selected chapters from historical writers of different periods. *Two hours.* Mr. PECK.

11. Voltaire. Reading of selected works, lectures, and reports. *Two hours.* Professor CANFIELD.

13. Hugo and Balzac. Part I. The novels of Victor Hugo, his art and literary methods. Lectures, readings, reports, and discussions. *Two hours.* Professor LEVI.

15. The Dramatic Literature of the Nineteenth Century. Part I. The Drama of the Revolution; the Melodramatic Period; the Romantic Movement. *Three hours.* Assistant Professor EFFINGER.

17. Montesquieu and Diderot. Studies in the intellectual movements of the Eighteenth Century. *Two hours.* Assistant Professor DE PONT.

19. Poetry of the Ninteenth Century, especially with reference to the growth and the transformation of the Romantic Movement. Lamartine, Hugo, Musset, Vigny, Gautier, Parnassiens and Symbolistes. *Three hours.* Professor CANFIELD.

21. History of French Literature in the Seventeenth, Eighteenth, and Nineteenth Centuries. A general survey. Lectures, readings, and reports. *Two hours.* Professor LEVI.

23. Proseminary in French Literature. The early works of Victor Hugo. *Two hours.* Professor CANFIELD.

25. Historical French Grammar. I. Phonology. Lectures, with illustrative Old French readings. *Two hours.* Professor CANFIELD.

27. History of French Literature to the end of the Fifteenth Century. Lectures, readings, and reports. *Two hours.* Dr. HAMILTON.

[29. French Versification. A critical and historical study of French verse structure from its origin to the present. *Two hours.* Dr. THIEME.
Omitted in 1904-1905.]

31. Journal Club. Reviews of results of current research in the field of the Romance languages and literatures, by the instructors of the department and advanced students.

SECOND SEMESTER

2. Elementary Course continued. Reading of Modern French prose and plays, with practice in speaking and composition. Eight sections. *Four hours.* Professors CANFIELD and LEVI, Assistant Professors DE PONT and EFFINGER, Dr. THIEME, and Mr. PECK.

2*a*. Continuation of Course 1*a*. Two sections. *Four hours.* Dr. HAMILTON.

4. Reading of Modern French texts, with practice in speaking and writing French. Continuation of Course 3. Six sections. *Four hours.* Assistant Professors DE PONT and EFFINGER, Dr. THIEME, Mr. PECK, and Dr. WAGNER.

4*a*. French Conversation. Same as Course 3*a*, and not open to students who have taken that course. *One hour.* Assistant Professor DE PONT.

6. Advanced Prose Composition. Three Sections. *Two hours.* Assistant Professor DE PONT, Dr. THIEME, and Dr. WAGNER.

8. The Drama of the Seventeenth Century. Continuation of Course 7. *Three hours.* Assistant Professor EFFINGER.
10. Continuation of Course 9. French Society and Culture in the Sixteenth, Seventeenth, and Eighteenth Centuries. *Two hours.* Dr. THIEME.
10*a*. Continuation of Course 9*a*. *Two hours.* Mr. PECK.
12. Rousseau. Reading of selected works, lectures, reports. *Two hours.* Professor CANFIELD.
14. Hugo and Balzac. Part II. Continuation of Course 13. The novels of Hugo and Balzac compared. Lectures, readings, reports, and discussions. *Two hours.* Professor LEVI.
16. The Dramatic Literature of the Nineteenth Century. Part II. Continuation of Course 15. *Three hours.* Assistant Professor EFFINGER.
18. Dramatists of the Eighteenth Century. Regnard, Marivaux, Destouches, Piron. Lectures, readings, reports. *Three hours.* Assistant Professor DE PONT.
20. The Growth of Realism in the Nineteenth Century, especially in the Novel. Lectures and assigned readings. *Three hours.* Professor CANFIELD.
22. History of French Literature in the Seventeenth, Eighteenth, and Nineteenth Centuries. Continuation of Course 21. *Two hours.* Professor LEVI.
24. Proseminary in French Literature. Continuation of Course 23. *Two hours.* Professor CANFIELD.
26. Historical French Grammar, II. Morphology. Lectures. *Two hours.* Professor CANFIELD.
28. Provençal. Outline of the grammar, with readings in Appel's *Provenzalische Chrestomathie.* *Two hours.* Dr. HAMILTON.
30. Teachers' Course. A general view of the elements of grammar from the standpoint of the needs of elementary instruction. *One hour.* Professor CANFIELD.

ITALIAN

FIRST SEMESTER

1. Italian Grammar. Easy Prose. *Three hours.* Professor LEVI. Course 1 is open only to students who have completed Courses 1 and 2 in French.
3. Dante. *La Vita Nuova* and *La Divina Commedia.* Lectures and recitations. *Two hours.* Professor LEVI.

SECOND SEMESTER

2. Continuation of Course 1. Modern readings. *Three hours.* Professor LEVI.
4. Dante. *La Divina Commedia.* Continuation of Course 3. Lectures and recitations. *Two hours.* Professor LEVI.

SPANISH

FIRST SEMESTER

1. Elementary Course. Grammar and easy reading. Two sections. *Three hours.* Dr. Wagner.

   Course 1 must be preceded by Courses 1 and 2 in French.
3. Reading of modern texts, with advanced practice in speaking and writing. *Three hours.* Dr. Wagner.
5. Cervantes. *Novelas Ejemplares. Two hours.* Dr. Wagner.

SECOND SEMESTER

2. Continuation of Course 1. Reading of modern prose and plays, with exercises in speaking and writing Spanish. *Three hours.* Dr. Wagner.
4. Reading of modern texts, with advanced practice in speaking and writing. *Three hours.* Dr. Wagner.
6. History of Spanish Literature in the Sixteenth and Seventeenth Centuries. Lectures and readings. *Two hours.* Dr. Wagner.

GERMAN

Courses 7-42 are advanced undergraduate and graduate courses, and should be elected only after consultation with the instructors. At least one elective under 5 and 6, and Courses 9, 10, 13, 14, 17, 18, and 26 are usually required for the Teacher's Diploma in German.

1. Elementary Course. Pronunciation, grammar, easy readings, with practice in speaking and writing German. Seven sections. *Four hours.* Assistant Professor Hildner, Dr. Florer, Dr. Boucke, Dr. Eggert, Mr. Dieterle, Dr. Lange, and Mr. Scholl.
3. Modern Prose, narrative and dramatic, with practice in speaking and writing German. Nine sections. *Four hours.* Assistant Professor Hildner, Dr. Florer, Dr. Boucke, Dr. Eggert, Mr. Dieterle, and Dr. Lange.
5. Third-year Electives. These may be taken as—
   - 5*a*. Schiller's *Wallenstein* and *Die Braut von Messina.* Two sections. *Four hours.* Professor Winkler and Assistant Professor Diekhoff.
   - 5*b*. Goethe's *Götz von Berlichingen, Leiden des jungen Werthers,* and Schiller's *Kabale und Liebe. Three hours.* Assistant Professor Hildner.
   - 5*c*. *Don Carlos, Maria Stuart,* and *Jungfrau von Orleans. Three hours.* Dr. Florer.
   - 5*d*. Lessing's *Hamburgische Dramaturgie. Two hours.* Assistant Professor Hildner.
7. Selected Readings from the Novels of Freytag, Scheffel, and Sudermann. *Two hours.* Dr. Florer.

9. German Composition. Five sections. *Two hours.* Assistant Professors DIEKHOFF and HILDNER, Dr. BOUCKE, Dr. EGGERT, and Mr. DIETERLE.

9*a*. Advanced German Composition. *Two hours.* Dr. BOUCKE.

11. German Conversation. Three sections. *Two hours.* Dr. LANGE.

13. A Systematic Study of Modern German Grammar. Intended primarily for those who are preparing themselves to teach German. *Two hours.* Assistant Professor DIEKHOFF.

15. Goethe's *Faust.* Part I. Lectures and recitations. Thomas's edition. *Two hours.* Professor WINKLER.

17. History of German Literature. From the earliest times to the end of the Middle Ages. Lectures and selected readings. *Two hours.* Professor WINKLER.

19. German Romanticism. The beginnings of the Romantic Movement in its relation to the social, political, and philosophical thought of the times. Lectures, discussions, and assigned readings. *Two hours.* Professor WINKLER.

21. Proseminary in Modern German Literature. The Storm and Stress Movement. *Two hours.* Professor WINKLER.

23. Epochs of German Culture. Lectures and readings of selections from Freytag's *Bilder aus der deutschen Vergangenheit. Two hours.* Dr. BOUCKE.

25. The Early Writings of Lessing. Lectures and reports. *Two hours.* Dr. FLORER.

27. Introduction to Middle High German. Lectures and recitations. Paul's *Mittelhochdeutsche Grammatik,* 4te Aufl., and *Bachmann's Mittelhochdeutsches Lesebuch. Two hours.* Assistant Professor DIEKHOFF.

29. Old High German. Lectures based upon Braune's *Abriss der Althochdeutschen Grammatik,* 2te Aufl., and reading of selections from Braune's *Althochdeutsches Lesebuch,* 4te Aufl. *Two hours.* Assistant Professor DIEKHOFF.

[31. Old Saxon. Lectures and recitations. Holthausen's *Altsächsisches Elementarbuch,* and Behaghel's *Heliand. Two hours.* Assistant Professor DIEKHOFF.
Omitted in 1904-1905.]

37. The Elements of Phonetics, with special reference to the sounds of German, French, etc. *Two hours.* Professor HEMPL.

41. History of the German Language. *Two hours.* Dr. BOUCKE.

SECOND SEMESTER

2. Elementary Course. Grammar, descriptive prose, short stories, with practice in speaking and writing German. Seven sections. *Four hours.* Assistant Professor HILDNER, Dr. FLORER, Dr. BOUCKE, Dr. EGGERT, Mr. DIETERLE, Dr. LANGE, and Mr. SCHOLL.

4. A drama of Lessing, Goethe, or Schiller, with collateral prose reading and practice in speaking and writing German. Nine sections. *Four hours.* Assistant Professor HILDNER, Dr. FLORER, Dr. BOUCKE, Dr. EGGERT, Mr. DIETERLE, and Dr. LANGE.

6. Third-year Electives. These may be taken as—

   6*a*. Goethe's *Iphigenie, Tasso, Hermann und Dorothea,* and *Wilhelm Meister.* Two sections. *Four hours.* Assistant Professor HILDNER and Dr. FLORER.

   6*b*. Lessing's *Nathan der Weise, Anti-Goeze,* and *Erziehung des Menschengeschlechts. Three hours.* Assistant Professor DIEKHOFF.

   6*c*. Lessing's *Laokoon.* A study of Lessing's essay with comparison of the critiques of Herder and Goethe. *Two hours.* Professor WINKLER.

   6*d*. German Lyrics. Lyrics of Goethe, Schiller, Heine, Uhland, Geibel, etc. *Two hours.* Dr. EGGERT.

8. Selected readings from the Novels of Auerbach, Spielhagen, Frenssen, etc. *Two hours.* Dr. FLORER.

10. German Composition. Continuation of Course 9. Four sections. *Two hours.* Assistant Professors DIEKHOFF and HILDNER, Dr. BOUCKE, and Mr. DIETERLE.

10*a*. Advanced German Composition. Continuation of Course 9*a*. *Two hours.* Dr. BOUCKE.

12. German Conversation. Continuation of Course 11. Three sections. *Two hours.* Dr. LANGE.

14. A Systematic Study of Modern German Grammar. Continuation of Course 13. Intended primarily for those who are preparing themselves to teach German. *Two hours.* Assistant Professor DIEKHOFF.

16. Goethe's *Faust,* Part II. Continuation of Course 15. Thomas's edition. *Two hours.* Professor WINKLER.

18. History of German Literature. From Luther to the death of Lessing. Continuation of Course 17. Lectures and selected readings. *Two hours.* Professor WINKLER.

20. History of German Literature of the Nineteenth Century down to the Revolution of 1848. Continuation of Course 19. *Two hours.* Professor WINKLER.

22. History of German Literature in the second half of the Nineteenth Century. *Two hours.* Professor WINKLER.

24. Epochs of German Culture. Continuation of Course 23. *Two hours.* Dr. BOUCKE.

26. Teachers' Course. Lectures, and discussions on the methods of teaching German and the organization of courses. *Two hours.* Professor WINKLER.

28. The Middle High German Folk-epic. Lectures and reading of portions of the *Nibelungenlied, Gudrun,* and minor epics. Continuation of Course 27. *Two hours.* Assistant Professor DIEKHOFF.

30. Old High German. Readings from Otfrid's *Evangelienbuch* and lectures on Old High German Literature. Continuation of Course 29. *Two hours.* Assistant Professor DIEKHOFF.

[32. Old Saxon. Continuation of Course 31. *Two hours.* Assistant Professor DIEKHOFF.
Omitted in 1904-1905.]

37a. The Teaching of Modern Languages. *Two hours.* Professor HEMPL.

38. Life and Works of Luther. Lectures and assigned readings. *Two hours.* Dr. FLORER.

39. Hans Sachs. Lectures, reading, and reports. *Two hours.* Assistant Professor HILDNER.

40. Heinrich Heine. A comprehensive study of his life and works. Lectures and reports on assigned topics. *Two hours.* Dr. BOUCKE.

42. History of the German Language. Continuation of Course 41. *Two hours.* Dr. BOUCKE.

GOTHIC

FIRST SEMESTER

33. Lectures on Phonology and Morphology and reading of the Gospels. Wright's *Primer of the Gothic Language. Two hours.* Assistant Professor DIEKHOFF.

SECOND SEMESTER

34. The Epistles. Heyne's *Ulfilas,* 9te Aufl. *Two hours.* Assistant Professor DIEKHOFF.

SCANDINAVIAN

FIRST SEMESTER

[35. Old Icelandic. Introductory Course. Lectures and recitations. Kahle's *Altisländisches Elementarbuch. Two hours.* Dr. BOUCKE.
Omitted in 1904-1905.]

SECOND SEMESTER

[36. The Elder Edda. Jonson. *Eddalieder. Two hours.* Dr. BOUCKE.
Omitted in 1904-1905.]

JOURNAL CLUB:—

Current Literature of German Philology and Literature. Meetings of instructors and advanced students in the German department are held every two or three weeks throughout the year, at which reports are made on important contributions to Germanic philology and literature.

ENGLISH PHILOLOGY AND GENERAL LINGUISTICS

The work of this department is concerned with the study of (1) the mother tongue, (2) the life and growth of language in general, and (3) the teaching of language. Courses 6, 7, and 9 are Teachers' Courses in the English department. Courses 4 and 11 are the same as Courses 37 and 37*a* in German. Course 2 is recommended in the various language departments to those intending to teach.

FIRST SEMESTER

3. Old English (Anglo-Saxon) for beginners. Intended to furnish (1) a practical introduction to the study of Old English for those who wish to devote themselves to the subject, (2) a basis for historical study of the language. *Two hours.* Professor HEMPL.

[1. Chaucer's English. A brief introduction to the subject, the private reading of several of Chaucer's works, and the study of Chaucer's English as compared with Modern English. *Two hours.* Professor HEMPL.

Omitted in 1904-1905.]

7. The History of the English Language. Lectures on the most important factors in the history of the language, together with the investigation of the cause and process of certain changes in usage. *Two hours.* Professor HEMPL.

13. English Etymology. A study of the origin of English words and of the changes they have undergone in form and meaning. *Two hours.* Professor HEMPL.

5. Special Problems. The investigation of special problems in English philology, dealing chiefly with the historical development of certain phases of English speech. *Two hours.* Professor HEMPL.

4. The Elements of Phonetics, with special reference to the sounds of German, French, etc. *Two hours.* Professor HEMPL.

Course 4 is expressly designed for candidates who are preparing themselves to teach modern languages.

SECOND SEMESTER

2. Principles of Linguistic Science. Lectures on the most important phases of the life and growth of language, together with the study of some of the simpler problems of general linguistics. *Two hours.* Professor HEMPL.

[8. Old English (Anglo-Saxon) Poetry. *Two hours.* Professor HEMPL.

Omitted in 1904-1905.]

10. Old English (Anglo-Saxon) Prose. Lectures on the history of Old English sounds and forms, together with the private reading of Old English prose texts and the investigation of one or two problems. *Two hours.* Professor HEMPL.

Course 10 must be preceded by Course 3.

9. Modern English Grammar. *Two hours.* Professor HEMPL.
Course 9 is intended especially for candidates preparing to teach English.

6. Spoken English, with special reference to American English. A study of colloquial English as distinguished from the English of books and artificial speech. It is the aim of the course to give to students who have not much acquaintance with foreign languages, some idea of the nature of language and the cause of diversity of usage in the different parts of the English-speaking world. *Two hours.* Professor HEMPL.
Course 6 may be offered in place of Course 7 or Course 9 in fulfilment of the requirement for a Teacher's Diploma.

12. Special Problems. The investigation of special problems in English philology, dealing chiefly with the historical development of certain phases of English speech. *Two hours.* Professor HEMPL.

11. The Teaching of Modern Foreign Languages. *Two hours.* Professor HEMPL.
Course 11 aims to provide for those who intend to be teachers of modern languages (1) a brief survey of the most important methods now employed, and (2) practical instruction in the conduct of the work of the first year.

ENGLISH

Courses 11, 12, and 14 are conducted on the seminary plan, the class being divided into small sections for the presentation of theses and reports, and for extempore discussion and conference. These courses are designed for advanced students only, and are usually taken by students in their last year of residence at the University.

Courses 4, 4*a*, 8, 10, 10*a*, 11, 12, and 14 will ordinarily be found suitable for graduate students as well as for undergraduates. In the case of students who have taken these courses for their first degree, special advanced courses are arranged for graduate study, after conference with the candidate. Some of the courses given in recent years are the following: The Development of the English Novel; The English Satirists of the Sixteenth, Seventeenth, and Eighteenth Centuries; The Romantic Revival in England at the close of the Eighteenth Century; The Pre-Shakespearean Drama in England; Shakespeare's Histories.

Students who desire to take a Teacher's Diploma in English and Rhetoric will be expected to complete Courses 5, 7 (or 9), 10, 10*a*, 11, and 12 in English, and Courses 3 (or 4), and 6 in Rhetoric. For Course 7 (or 9) Course 6 in English Philology may be substituted at the option of the student.

Courses 3, 7, 8, and 9 are identical with the corresponding courses in English Philology.

FIRST SEMESTER

1. English Literature. Historical Outline, with assigned readings. Two sections. *Two hours.* Assistant Professor **Strauss**.

   Course 1 (together with Course 2) is designed to give a general introduction to the subject, preparatory to a more minute study of special periods.

3. Old English (Anglo-Saxon) for beginners. *Two hours.* Professor **Hempl**.

4. English Literature. The Thirteenth and Fourteenth Centuries. Lectures and readings, mainly in pre-Chaucerian Middle-English literature, illustrating Chaucer and the Middle Ages. *Two hours.* Dr. **Tatlock**.

   Course 4 is suitable for graduate students as well as undergraduates, and must be preceded or accompanied by a course in Chaucer.

5. English Literature. Chaucer. The General Prologue and six of the Canterbury Tales are read in the class room, with attention to language and antiquities, and with the purpose of giving an intelligent appreciation of Chaucer and his age. Most of Chaucer's poems are read outside by the students, and occasional lectures are delivered. Two sections. *Two hours.* Dr. **Tatlock**.

5*a*. English Literature. From the Renaissance to the death of Spenser. More, Wyatt and Surrey, Lyly, Sidney, and other writers; the new lyric poetry, formal satire, and the early novel; the drama from the Renaissance to Shakespeare. Lectures, reading, and recitations. *Three hours.* Dr. **Tatlock**.

6. English Literature. From Milton to Pope. *Three hours.* Assistant Professor **Strauss**.

7. The History of the English Language. *Two hours.* Professor **Hempl**.

10. Poetics. The Epic and the Lyric. Lectures and discussions. *One hour.* Professor **Demmon**.

    Course 10 is especially designed to accompany Course 11.

11. English Literature Seminary. Study of Masterpieces: More's *Utopia;* Bacon's *Essays;* Milton's *Areopagitica;* Carlyle's *Sartor Resartus;* George Eliot's *Silas Marner;* Spenser's *Faery Queen,* Book I; Shakespeare's *Sonnets;* Milton's *Paradise Lost;* Dryden's *Absalom and Achitophel;* Wordsworth's *Excursion;* Tennyson's *Maud;* Browning's *The Ring and the Book;* Swinburne's *Atalanta in Calydon.* Six sections. *Two hours.* Professor **Demmon** and Assistant Professor **Strauss**.

15. Studies in the text of Shakespeare. *Two hours.* Professor **Demmon**.

Course 15 is designed principally for graduate students. The aim will be to illustrate the methods of textual study as applied to a play like *Hamlet*, and the difficulties to be overcome in establishing a text. The McMillan Shakespeare Library affords a very full apparatus for these studies.

SECOND SEMESTER.

2. English Literature. Historical Outline, with assigned readings. Continuation of Course 1. Two sections. *Two hours.* Assistant Professor STRAUSS.

4*a*. English Literature. From Chaucer to the Renaissance. Lectures and outside readings in Chaucer, Gower, Langland, Mandeville, Malory, Skelton, the Scottish poets of the Fifteenth and Sixteenth Centuries, and other writers, and on the native origin of the English drama. *Two hours.* Dr. TATLOCK.

Course 4*a* is suitable for graduate students as well as undergraduates.

5. English Literature. Chaucer. *Two hours.* Dr. TATLOCK.

See note on English 5, in the first semester.

5*b*. English Literature. From the death of Spenser to the Restoration. Lectures and outside reading, with recitations on both. The course deals with the drama from Shakespeare to the closing of the theatres, including Shakespeare, Jonson, Beaumont and Fletcher, Webster, Middleton, Massinger and Ford; with Bacon, Browne, Burton, Izaak Walton, and other prose writers; and with Giles and Phineas Fletcher, Herbert, Herrick, Milton, and other poets. *Three hours.* Dr. TATLOCK.

6*a*. English Literature. From Pope to Wordsworth. *Three hours.* Assistant Professor STRAUSS.

6*b*. English Literature. From Wordsworth to Tennyson. Wordsworth, Coleridge, Scott, Byron, Shelley, Keats, and other poets; Lamb, Hazlitt, Hunt, De Quincey, Scott, Jane Austen, and other prose writers. Lectures, reading, and recitations. *Three hours.* Dr. TATLOCK.

[8. Old English (Anglo-Saxon) Poetry. *Two hours.* Professor HEMPL.

Omitted in 1904-1905.]

9. Modern English Grammar. *Two hours.* Professor HEMPL.

This course is intended especially for candidates preparing to teach English.

10*a*. Poetics. The Drama. Lectures and discussions. *One hour.* Professor DEMMON.

Course 10*a* is especially designed to accompany Course 12.

12. Shakespeare Seminary. Plays selected: *A Midsummer Night's Dream; The Merchant of Venice; As You Like It; The Tempest; Richard III;* the two parts of *Henry IV; Henry V; Romeo and Juliet; Hamlet; Othello; King Lear; Macbeth; Coriolanus.* Six sections. *Two hours.* Professor DEMMON and Assistant Professor STRAUSS.

14. American Literature Seminary. Authors studied: Irving, Cooper, Bryant, Emerson, Hawthorne, Longfellow, Whittier, Poe, Holmes, Thoreau, Lowell, Taylor, Howells, and James. *Two hours.* Professor DEMMON.

Course 14 must be preceded by Course 11. Representative works of the authors named are studied and compared with masterpieces of British authors, and an attempt is made to discover the distinctively American element.

RHETORIC

Courses 1 and 2 are required of all first-year students, and must precede all other courses.

Students who desire to take a Teacher's Diploma in English and Rhetoric will be expected to complete Courses 5, 7 (or 9), 10, 11, and 12 in English, and Courses 3 (or 4) and 6 in Rhetoric. For Course 7 (or 9) in English Course 6 in English Philology may be substituted at the option of the student.

The courses offered in this department are of three principal kinds: (1) Those intended primarily to give the student practice in the leading types of prose composition. These include Courses 1, 2, 3, 4, 13, and 14. (2) Courses intended primarily to familiarize the student with the fundamental principles of rhetoric and criticism. These include Courses 5, 7, 8, 9, 10, 12, and 15—Courses 7, 8, and 12 combining advanced composition with the study of rhetorical and critical theory. (3) A course (6) designed primarily for students who intend to teach.

The courses may be distinguished also as elementary and advanced. Courses 1 and 2 are introductory in character. They aim to promote clearness and correctness of expression through practice in the simpler kinds of composition. Courses 3 and 4, in which there is systematic practice in the four principal types of prose composition, are intended to follow Course 2, and are usually taken the second year. Courses 3*a* and 4*a* may profitably be taken in connection with them. Courses 5, 12, and 14, being still more advanced, belong naturally in the third year. In Courses 7 and 8 it is assumed that the student has already acquired considerable proficiency in composition and is prepared to give attention chiefly to the discussion of principles. Courses 9 and 10 are planned solely for students who are working for the higher degrees, though seniors are sometimes admitted to them by special permission.

FIRST SEMESTER

1. Composition and Rhetoric. Twelve sections. *Three hours.* Mr. THOMAS, Mr. MORRILL, and Mr. KIRK.

Students who show exceptional proficiency are admitted, at the discretion of the instructor, to a special section, in which the work is more advanced.

3. Advanced Composition and Rhetoric. Essays in description and narrative. Two sections. *Two hours.* Professor SCOTT.

3a. Studies in Diction and Usage. Two sections. *One hour.* Mr. Moriarty.

7. Interpretations of Literature and Art. A discussion of critical principles, and their application in the appreciation and interpretation of specimens of literature and art. *Two hours.* Professor Scott.

Open only to students who have permission. The course is conducted as a seminary.

9. Seminary in Rhetoric and Criticism. Professor Scott.

The subjects of discussion vary from year to year. Among the problems to be investigated are the following: The origins of prose; the development of paragraph structure; the theory of economy; the psychology of figures of speech; the sociological basis of the principles of usage; the morphology of publication; the rhythm of prose; the nature and origin of the leading types of discourse. In 1904-1905 a study is made of types of critical theory, from Plato to the present time. A few lectures are given on the general outlines of rhetorical theory, with special attention to the sociological and psychological interpretation of rhetorical processes.

Open only to graduate students.

11. Prose Rhythms. The purpose of this course is the careful study and discussion of the principal theories regarding the nature and origin of typical English prose rhythms. A parallel study is made of poetic rhythms for purposes of comparison. The course is intended for advanced students. *One hour.* Professor Scott.

13. Newspaper Writing: Theory and Practice. Lectures, discussions, and practical work. *Credit arranged.* Professor Scott.

This course is intended for students who are preparing to do newspaper work. It is conducted as a seminary and is open only to students who obtain special permission.

A course in technical journalism is offered in the Department of Engineering.

14. The Theory and Practice of Argumentation. A study of the principles which underlie argument. Special attention is paid to the brief, and the relative value of various forms of proof. The course is intended for those who desire special training in argumentation. Open to students who receive special permission. *Two hours.* Mr. Thomas.

SECOND SEMESTER

2. Composition and Rhetoric. Continuation of Course 1. Twelve sections. *Three hours.* Mr. Thomas, Mr. Morrill, and Mr. Kirk.

4. Advanced Composition and Rhetoric. Essays in Exposition and Argument. Two sections. *Two hours.* Professor Scott.

4*a*. Studies in Diction and Usage. Two sections. *One hour*. Mr. MORIARTY.

5. Principles of Style. *Two hours*. Mr. MORRILL.

The purpose in this course is to discover, from a critical study of illustrative selections, the principles governing the structure of the composition, the choice of words, and the development of the idea, in the best modern prose. The relation of the writer to his work and to his public receives some consideration. The selections are from Bunyan, Burke, Thackeray, Ruskin, Lowell, Carlyle, Newman, Addison, Macaulay, and others.

6. Teachers' Course. Methods of teaching English Composition and Rhetoric. *Two hours*. Professor SCOTT.

Course 6 includes (1) an outline of the underlying principles of rhetoric and composition, (2) a consideration of the problems of composition teaching, (3) a review of modern text-books, (4) a discussion of methods of teaching as outlined in the literature of the subject. Each member of the class is required to do some teaching.

Course 6 must be preceded by Course 3 or Course 4. It is taken preferably in the senior year.

8. Prose Fiction. Studies in the structure and function of the leading types of prose fiction, including the short story. *Two hours*. Professor SCOTT.

Open only to students who have permission. The course is conducted as a seminary.

[10. Seminary in Rhetoric and Criticism. Continuation of Course 9. Professor SCOTT.

Course 10 is open only to graduate students.

Omitted in 1904-1905.]

12. Reviews. Essays, lectures, and discussions.

The aim of this course is to furnish instruction, and give practice, in the writing of book-reviews. A few lectures on standards of criticism and methods of reviewing are given and specimen reviews are analyzed in detail. *Two hours*. Professor SCOTT.

ELOCUTION AND ORATORY

For information regarding the University Oratorical Association, and the annual contests in oratory and debate, which afford opportunity for a practical application of the principles taught, see p. 42.

FIRST SEMESTER

1. Elocution. Exercises in vocal culture, breathing, position, and technique of gesture; pronunciation and emphasis; the Rush and Delsarte philosophies; elements of quality and force, with their application. Delivery of short extracts from masterpieces of oratory. Two sections. *Two hours*. Mr. HOLLISTER.

2. Elocution. Exercises in vocal culture continued; elements of pitch and time, with illustrations; study and application of the principles of action; delivery of short extracts from masterpieces of literature. *Two hours.* Mr. HOLLISTER.

Course 2 must be preceded by Course 1 or an equivalent.

3. Study of Great Orators. Lectures on methods of public address and sources of power. Study of representative orations. Structure of the oration. Preparation and delivery of speeches. *Two hours.* Professor TRUEBLOOD.

Designed especially for those who desire at some time to enter the oratorical contests. Course 3 must be preceded by Courses 1 and 2 or their equivalent.

5. Debating. Study and application of the principles of argumentation. Preparation of briefs. Leading questions of the day debated in class. *Two hours.* Professor TRUEBLOOD.

This course is designed to develop readiness in extempore speaking. It is recommended especially to those who desire to enter the inter-collegiate debates. Course 5 must be preceded by Courses 1 and 2 or their equivalent.

7a. Shakespearean Reading. Critical study of two plays. Analysis of character, plot, and incident. Expressional reading of principal scenes. Plays selected from the following: *Coriolanus, King John, Henry VIII, Antony and Cleopatra, Comedy of Errors, Taming of the Shrew, Measure for Measure. Two hours.* Professor TRUEBLOOD.

Course 7 must be preceded by Courses 1 and 2 or an equivalent.

SECOND SEMESTER

1. Elocution. Exercises in voice culture, breathing, position, and technique of gesture; pronunciation and emphasis; the Rush and Delsarte philosophies; elements of quality and force, with their application. Delivery of short extracts from masterpieces of oratory. *Two hours.* Mr. HOLLISTER.

2. Elocution. Exercises in vocal culture continued; elements of pitch and time, with illustrations; study and application of the principles of action; delivery of short extracts from masterpieces of literature. Two sections. *Two hours.* Mr. HOLLISTER.

Course 2 must be preceded by Course 1 or an equivalent.

4a. Shakespearean Reading. Critical study of character, plot, and incident. Expressional reading of two plays. Plays selected from the following: *Hamlet, King Lear, Henry V, As You Like it, Twelfth Night, Cymbeline.* Two sections. *Two hours.* Professor TRUEBLOOD.

Course 4 must be preceded by Courses 1 and 2 or their equivalent.

6. Debating. Continuation of Course 5. *Two hours.* Professor TRUEBLOOD.

Course 6 must be preceded by Courses 1 and 2 or their equivalent.

MUSIC

The courses in Music are open to students who evince sufficient ability to pursue them with profit. Courses 1, 3, 5, and 7 are technical, and represent a course of professional training, for the completion of which four years are required. Courses 9, 11, and 13 are open to students who wish to study the historical development of music as well as its significance as an art. The instruments in the Stearns Collection are used in these courses. An "Aeolian Orchestrelle" and a "Cecilian" are also used for purposes of illustration.

FIRST SEMESTER

1. Science of Harmony. *Two hours.* Professor STANLEY.
1*a* or 1*b*. Applied Choral Music. *Two hours.* Professor STANLEY.
3. Simple Counterpoint. *Two hours.* Professor STANLEY.
5. Double Counterpoint. *Two hours.* Professor STANLEY.
7. Canon and Fugue. *Two hours.* Professor STANLEY.
9. History of Music. *Three hours.* Professor STANLEY.
11. Music in its Critical and Ethical Aspects. *Two hours.* Professor STANLEY.
13. Evolution of Musical Instruments. *One hour.* Professor STANLEY.

SECOND SEMESTER

2. Science of Harmony. *Two hours.* Professor STANLEY.
4. Simple Counterpoint. *Two hours.* Professor STANLEY.
6. Double Counterpoint. *Two hours.* Professor STANLEY.
8. Canon and Fugue. *Two hours.* Professor STANLEY.
10. History of Music. *Three hours.* Professor STANLEY.
12. Music in its Critical and Ethical Aspects. *Two hours.* Professor STANLEY.
14. Evolution of Musical Instruments. *One hour.* Professor STANLEY.

HISTORY

The courses offered are, for convenience and clearness, arranged under two heads: (I) History, (II) Government.

I. In History the courses comprise: (*a*) Introductory courses (1 and 2); (*b*) intermediate courses (3, 4, 7 to 15, inclusive, 21, 38, and 39); (*c*) special advanced courses (5, 6, 17, 18, 23, 24, 25, and 26); and (*d*) a Teachers' Course (20). As a rule, Courses 1 and 2 should precede all others and should be taken in the order named.

II. In Government the courses treat (*a*) of political institutions and constitutional law (19, 22, 31, and 32); and (*b*) of administrative and municipal law (27, 28, 29, 30, 33, 34, and 36). As a rule, these courses are supplementary to those included in the previous subdivision.

For the Teachers' Diploma at least twenty-five hours' work in History is required. This work should, as a rule, include Courses 1, 2, 3, 4, 14, 15, and 20, and must include some advanced work under the direction of at least one of the instructors in History.

I. History.

FIRST SEMESTER

1. The General History of Europe, from the Fourth to the Thirteenth Century. Lectures. Quiz on lectures and reading.
Eight quiz sections. *Four hours.* Professor Dow and assistants.

3. The General History of England, to the accession of Henry VII. Lectures. Quiz on lectures and assigned reading.
Three quiz sections. *Three hours.* Assistant Professor Cross.

5. Studies in English History during the Tudor and Stuart Periods. Reports and discussions, with introductory and supplementary lectures. *Two hours.* Assistant Professor Cross.
Open to those who have taken History 3 and 4, or an equivalent. The aim of the work is to enable the student to acquire an intimate acquaintance with a limited subject and to furnish training in the critical and constructive use of material. The subject treated in 1904-1905 is:
The Restoration and the Revolution of 1688-1689.

7. The History of Greece, to the Roman Conquest. Lectures, discussions, and collateral reading. *Three hours.* Assistant Professor Cross.

9. Studies in Mediæval and Early Modern European History. Lectures, reports, and discussions. *Two hours.* Professor Dow.
Course 9 offers opportunity for more intensive study in some of the fields treated only generally in Courses 1 and 2. As a rule it is open to those who have had Courses 1 and 2, or an equivalent. It may be elected as follows:

[9*a*. The Feudal Régime and the Progress of Towns, especially in France.
Omitted in 1904-1905.]

9*b*. Studies in the Period of the Renaissance and the Reformation.

11. General History of Europe from the Peace of Westphalia to the Fall of Napoleon. Lectures. Quiz on lectures and reading. Two quiz sections. *Three hours.* Professor Hudson.

14. The Political, Constitutional, and Social History of the United States. From the outbreak of the Revolution to the Civil War. Lectures. Quiz on lectures and reading. Five quiz sections. *Three hours.* Assistant Professor Van Tyne.
In connection with Courses 14 and 15, supplementary lectures by non-resident lecturers are given. Professor Andrew C. McLaughlin gives five lectures on constitutional questions in the period 1763-1790; Professor Frederick J. Turner five lectures on phases of Western history.

17. Seminary in American History. The subject for 1904-1905 is the Making of the Constitution. *Two hours.* Assistant Professor Van Tyne.

Open only to graduates and to seniors obtaining special permission.

Professor J. Franklin Jameson meets the seminary on three successive days to conduct an investigation of some limited subject, for the purpose of illustrating the method of historical research.

21. China and Japan: Their Civilization and Their Relations with the Western Powers. *Two hours.* Professor Hudson.

21*a*. Supplementary to Course 21, the object being to direct the reading of students in connection with the topics covered by the lectures. *One hour.* Professor Hudson.

23. Studies in Modern History. Lectures, reports, and discussions. *Two hours.* Professor Hudson.

The object of this course is to enable students who already have a good knowledge of modern history to make a critical study of a limited period. The following subjects are treated in alternate years:

23*a*. Japan: Its Civilization and Its Relations with Russia and with China.

[23*b*. The History of England since the Formation of the first Gladstone Ministry, with especial reference to the policy and measures of Gladstone and Disraeli.

Omitted in 1904-1905.]

25. Seminary in Mediæval History. *Two hours.* Professor Dow.

The course is open only to graduates and to seniors with permission.

37. The History of the United States During the Civil War and the Period of Reconstruction. *Three hours.* Mr. Fox.

39. Studies in American History. Reports and discussions. *Two hours.* Assistant Professor Van Tyne.

SECOND SEMESTER

2. General History of Europe, from the Thirteenth to the Eighteenth Century. Lectures. Quiz on lectures and reading. Eight quiz sections. *Four hours.* Professor Dow and assistants.

4. The General History of England, since the accession of Henry VII. Lectures. Quiz on lectures and assigned reading. Three quiz sections. *Three hours.* Assistant Professor Cross.

6. Studies in English History in the Tudor and Stuart Periods. Reports and discussions, with introductory and supplementary lectures. *Two hours.* Assistant Professor Cross.

This course is a continuation of History 5. The subject treated in 1904-1905 is:

The Reformation and the Revolution of 1688-1689.

8. The History of Rome, to the Founding of the Roman Empire. Lectures, discussions, and collateral reading. *Three hours.* Assistant Professor CROSS.

10. Studies in Mediæval and Early Modern European History. Lectures, reports, and discussions. *Two hours.* Professor DOW.
This course is a continuation of History 9. It may be elected as follows:

[10*a*. Studies in the History of France, with especial reference to the development of institutions under the monarchy.
Omitted in 1904-1905.]

10*b*. Studies in the Period of the Renaissance and the Reformation.

12. The General History of Europe, since the French Revolution. Lectures. Quiz on lectures and on reading. Two quiz sections. *Three hours.* Professor HUDSON.
Course 12 is a continuation of Course 11.

13. American Colonial History. Lectures with assigned readings and written reports. *Three hours.* Mr. FOX.

15. The Political and Constitutional History of the United States. Continuation of Course 14. Lectures. Quiz on lectures and assigned reading. Five quiz sections. *Three hours.* Assistant Professor VAN TYNE.
See note to Course 14 in first semester.

18. Seminary in American History. Continuation of Course 17. *Two hours.* Assistant Professor VAN TYNE.
Limited to graduate students and to seniors obtaining permission.

20. Course for Teachers. *One hour.* Professor DOW, Assistant Professor VAN TYNE, and Assistant Professor CROSS.
Open to students who have permission. Candidates for the Teachers' Diploma in History are expected to elect this as one of their courses.

24. Studies in Modern History. Continuation of Course 23. Lectures, reports, and discussions. *Two hours.* Professor HUDSON.
Course 24 may be elected as:

24*a*. England as a Colonial Power. A study of the growth and government of the British Empire.

[24*b*. The expansion of Russia and its relations with the Ottoman Empire.
Omitted in 1904-1905.]

26. Seminary in Mediæval History. Continuation of Course 25. *Two hours.* Professor DOW.
Course 26 is open only to graduates and to seniors with permission.

38. Studies in American History. Reports and discussions. *Two hours.* Assistant Professor VAN TYNE.

II. Government.

FIRST SEMESTER

19. Constitutional Law and Political Institutions of the United States. *Three hours.* Mr. Fox.
27. Federal Administration. A study of the principles and machinery of the national administration in the United States. Lectures, reading, and essays. *Three hours.* Assistant Professor FAIRLIE.
29. Municipal Administration. The functions of city government. Lectures, text-book, and essays. *Three hours.* Assistant Professor FAIRLIE.
32. The Government of Michigan. Lectures, reading, and essays. *Two hours.* Assistant Professor FAIRLIE.
33. Seminary in Administration. Subject for 1904-1905: Local Institutions in the United States. *Two hours.* Assistant Professor FAIRLIE.

SECOND SEMESTER

22. Comparative Study of the Political Institutions of France, Italy, Germany, Switzerland, and Austria-Hungary. Lectures. *Two hours.* Professor HUDSON.

22a. Supplementary to Course 22, the object being to direct the reading of students in connection with the topics covered by the lectures. *One hour.* Professor HUDSON.

28. State and Local Administration in the United States. Lectures, reading, and essays. *Three hours.* Assistant Professor FAIRLIE.
30. Municipal Administration. Organization of city government with a study of municipal politics. Lectures, essays, and reading. *Three hours.* Assistant Professor FAIRLIE.
31. English Political Institutions. Lectures with text-book. *Two hours.* Assistant Professor FAIRLIE.
34. Seminary in Administration. Local Institutions in the United States. *Two hours.* Assistant Professor FAIRLIE.
36. Comparative Administrative Law. Lectures and reading. *Two hours.* Assistant Professor FAIRLIE.

PHILOSOPHY

The courses in Philosophy are not open to first-year students. Courses 1 to 9, inclusive, precede all others, and any one of them may be chosen as the avenue of entrance to the study of philosophy and as introductory to other courses. Students should consult with the instructors before making elections.

Courses 1, 2, 8, *8b*, 11, *11b*, 26, *26b*, and Course 4 in Anatomy, are required of students who wish to obtain the Teacher's Diploma in Psychology.

FIRST SEMESTER

I. Introductory Courses.

1. Philosophical Introduction. The Meaning, Interest, and Scope of Philosophy. Lectures, discussions, exercises. Text-books: Hume's *Inquiry Concerning Human Understanding* and Wenley's *Outline Introductory to Kant's Critique of Pure Reason.* Eight discussion sections. *Three hours.* Professor WENLEY and Mr. VIBBERT.

2. Principles of Ethical, Social, and Aesthetic Evolution. An introduction, on the basis of a study of mediævalism, to the origin and development of modern literary and political thought, and of modern views of society. Lectures. Collateral readings. Thesis. *Two hours.* Professor WENLEY.

[3. The Fundamental Conceptions of Modern Science in their Development and Implications. *Two hours.* Professor WENLEY. Omitted in 1904-1905.]

4. The Place of Doubt in Experience. A study of the rise and function of doubt, of the relation of doubt to belief, and of the relation of philosophy to the consciousness of practical life. Lectures, exercises, and collateral reading. *Two hours.* Professor LLOYD.

7. Elementary General Psychology. Lectures, assigned readings, and discussions. Text-book: Titchener's *Outline of Psychology. Two hours.* Assistant Professor PILLSBURY.

8. Introductory Physiological and Experimental Psychology. Sensation, Attention, Perception. Lectures, discussion, and laboratory work. Text-books: James's *Principles of Psychology,* Kuelpe's *Outlines of Psychology,* or Sully's *Human Mind;* Titchener's *Laboratory Manual. Three, four,* or *five hours.* Assistant Professor PILLSBURY and Mr. SHEPARD.

II. Course in Logic.

10. Second Course in Logic. An introduction to the more concrete modern conceptions of thought and logic. Lectures and text-book. Bosanquet's *Essentials of Logic.* Professor REBEC.
Course 10 is open to those who have had either Course 7 or Course 9.

III. Courses in History of Philosophy.

11. History of Ancient Philosophy. Lectures, reading, exercises. *Three hours.* Professor LLOYD.

12. Plato's *Republic.* Collateral reading and reports. Text-books: Davies and Vaughan's Translation; Bosanquet's *Companion to the Republic. Two hours.* Professor REBEC.

15. The Development of American Ideals. Origins; Edwards and the theological period; the Eighteenth Century and Revolution; the Unitarian movement; Transcendentalism; influence of the Scottish school and of H. Spencer; modern movements in psychology and systematic philosophy. *Two hours.* Professor REBEC.

16. Political Philosophy. *Two hours.* Professor Lloyd.
21. Kant and the Critique of Pure Reason. Text-books: Watson's *Selections from Kant,* and Wenley's *Introduction to the Critique.* Discussion, reading, and theses. *Two hours.* Professors Wenley and Lloyd.

IV. Special Courses.

17. Philosophy of Religion. Lectures, readings, theses. Special attention is given to the rise and disappearance of natural theology; to speculative theology; and to strictly contemporary problems. *Two hours.* Professor Wenley.
18. Aesthetics. Lectures, reading, discussions. *Two hours.* Professor Rebec.
19. Logic and Theory of Knowledge. A study of fundamental problems with special reference to the possible grounds of realistic experience. Lectures, exercises, and collateral reading. *Two hours.* Professor Lloyd.

V. Courses in Psychology.

26. A Study of Apperception. Teachers' Course. An introductory treatment of the psychological principles that underlie educational theory and practice. *Two hours.* Assistant Professor Pillsbury.
27. Advanced Course in Experimental Psychology. Original investigation. *Two, three,* or *six hours.* Assistant Professor Pillsbury and Mr. Shepard.

VI. Graduate Seminaries.

29. Graduate Seminaries. Arranged to give flexibility to the special work of graduate students. The work is apportioned as follows: Ancient Philosophy; Professors Wenley, Lloyd, and Rebec. History of Philosophy; Professor Lloyd. Philosophy of Religion; Professor Wenley. Modern Philosophy; Professors Wenley, Lloyd, Rebec, and Mr. Vibbert. Ethics, Epistemology, and Metaphysics; Professors Wenley and Lloyd. Logic and Æsthetics; Professor Rebec. Advanced General, Systematic, and Experimental Psychology; Assistant Professor Pillsbury and Mr. Shepard.

SECOND SEMESTER

I. Introductory Courses.

1. Philosophical Introduction. Same as in first semester. Five discussion sections. *Three hours.* Professor Wenley and Mr. Vibbert.
5. Ethics of Social Evolution; a Study of Ethical Types as seen in Social and Industrial Relations. Professor Wenley.
6. Principles and Problems in Æsthetic History (Special Æsthetics.) A concrete and inductive study of æsthetic development. Relation of philosophy to the interpretation of art, especially of poetry. Lectures, reading, analysis and discussion of representative masterpieces. *Two hours.* Professor Rebec.

7. Elementary General Psychology. Same as in first semester. *Two hours.* Assistant Professor PILLSBURY.

9. Introduction to Logic. Lectures, collateral reading, and text-book. Minto's *Logic, Deductive* and *Inductive*. *Three hours.* Professor REBEC.

II. Courses in History of Philosophy.

11*b*. History of Modern Philosophy. Lectures, reading, and reports. *Three hours.* Professor LLOYD.

23. Hegel's System. Wallace's *Prolegomena* and *Logic of Hegel*. *Two hours.* Professor WENLEY.

[24. Philosophy since Hegel. *Two hours.* Professor LLOYD. Omitted in 1904-1905.]

Courses 23 and 24 are given in alternate years.

25. Special Studies in the Philosophy of the Nineteenth Century. Supplementary to the graduate seminary. Discussions, readings, reports, theses. *Two hours.* Professor LLOYD.

III. Courses in Ethics.

13. Aristotle's Ethics. Collateral reading and reports. Text-book: Peters. *Two hours.* Professor REBEC.

20. Problems of Human Conduct. A study of the moral ideal, motive, and judgment, of conscience and will. *Two hours.* Professor LLOYD.

IV. Special Courses.

14. Political Philosophy. A history of the theories of society, ancient and modern. Attention will be given especially to the contract theory of the seventeenth and eighteenth centuries. Lectures, discussions, theses. *Two hours.* Professor LLOYD.

[19*b*. The Philosophy of Evolution. A criticism of Spencer; review of the recent theories; suggestions for a logic of the biological concepts. Lectures, exercises, and collateral reading. Professor LLOYD.

Omitted in 1904-1905.]

22. Philosophical Implications of Movements of Thought in the Nineteenth Century. Lectures, discussions. Special reference to evolution; materialism and agnosticism; the comparative method in history, criticism, and religion; philosophical systems. Monism and the future. This course is supplementary to the graduate seminary. *Two hours.* Professor WENLEY.

V. Courses in Psychology.

8*b*. Introductory Physiological and Experimental Psychology. Feelings, emotions, and the higher intellectual processes. Continuation of Course 8. *Three, four,* or *five hours.* Assistant Professor PILLSBURY and Mr. SHEPARD.

26*b*. Genetic Psychology. Teachers' Course. This course treats consciousness in its development, both in the animal series and in the child, and offers an opportunity, from the theoretical side, to prepare for the practical phases of child study in its relation to education. *Two hours.* Assistant Professor PILLSBURY.

28. Advanced Course. As in first semester. Assistant Professor PILLSBURY and Mr. SHEPARD.

VI. Graduate Seminaries.

30. Graduate Seminaries. As in first semester. Professors WENLEY, LLOYD, REBEC, Assistant Professor PILLSBURY, Mr. VIBBERT, and Mr. SHEPARD.

THE SCIENCE AND THE ART OF TEACHING

Students intending to pursue work in the Science and the Art of Teaching are urgently advised to take Courses 1 and 7 in Philosophy as preparatory. Courses 1 and 2 in Pedagogy should follow in the junior year, and electives for Teacher's Diploma in the senior year. Students desirous of specializing in School Administration are advised to take Course 19 in Sociology in conjunction.

For Teacher's Diploma see page 126. Teacher's courses given in the several departments are announced in connection with those departments.

FIRST SEMESTER

1. Principles of Education. Lectures, assigned readings, reports, and discussions. Four quiz sections. *Three hours.* Professor ALGER.

   This course involves a discussion of the fundamental principles of education as related to matter and methods of teaching and to problems of school administration.

3. History of Education, Ancient and Mediæval. Recitations and lectures. Text-book: Compayré's *History of Pedagogy. Three hours.* Professor PAYNE.

5. School Administration. General school management, the arts of grading and arranging courses of study, teachers' meetings, how to estimate a teacher's work, etc. Recitations and lectures. *Three hours.* Professor WHITNEY.

6. Theoretical and Critical Pedagogy. The psychological principles underlying the art of teaching, the formation of courses of study, and the social institutions. Text-book: Harris's *Psychologic Foundations. Three hours.* Professor WHITNEY.

7. The Philosophy of Education. Recitations and lectures. Text-book: Rosenkranz's *Philosophy of Education. Two hours.* Professor WHITNEY.

10. Social Education. A consideration of the school as a social factor in its relation to the child, the home, the state, and the church, and a discussion of the relations of education to vocation and crime. Lectures and recitations. Dewey's *The School and Society,* and Dutton's *Social Phases of Education. Two hours.* Professor WHITNEY.

12. Pedagogical Seminary. Critical Study of Spencer's *Education* and Rousseau's *Emile.* Themes and discussions. *Two hours.* Professor PAYNE.

SECOND SEMESTER

2. Introduction to the Philosophy of Education. This course aims to interpret the bearing of various sciences upon the problems of education. Horne's *Philosophy of Education.* Two sections. *Three hours.* Professor WHITNEY.

4. History of Modern Education. Recitations and lectures. Textbook: Compayré's *History of Pedagogy. Three hours.* Professor PAYNE.

8. School Administration. Consideration of elementary school arts, high school branches of study, methods of teaching and administration. Reports on assigned topics. *Two hours.* Professor WHITNEY.

[9. Friday Lectures. *One hour.* NON-RESIDENT LECTURERS. Omitted in 1904-1905.]

11. Practical Problems. A discussion of the problems which confront every inexperienced teacher at the outset of his career, such as discipline, class organization and management, examinations; teachers' relation to those in authority, to the pupils, the parents, the community, etc. Lectures and recitations. *One hour.* Professor WHITNEY.

13. Pedagogical Seminary. A critical study of Herbart's pedagogy. Themes and discussions. *Two hours.* Professor PAYNE.

14. Special Pedagogy of Latin. Lectures, assigned readings and reports, practical exercises. *One hour.* Professor DRAKE.

In this course themes of special interest to teachers of high school Latin are considered from the pedagogical standpoint.

POLITICAL ECONOMY, INDUSTRY AND COMMERCE, AND SOCIOLOGY*

Political Economy.—The instruction in Political Economy is arranged to meet the needs of three classes of students. The first class comprises those whose principal work lies in other departments of instruction, but who desire a cursory introduction to the science. Students of this class are advised to take Courses 2 and 3. The second class comprises those who desire to make a fairly thorough study of economics, but who have not time to take the advanced or the semi-professional work offered. Such students are advised to begin their work with Course 2 and follow it with Course 5 (or 5*a*) and 6, and, if further time is available, with Course 3 or Course 9. The third class embraces those students who desire to make a thorough study of the science of economics, and especially those who wish to combine the study of political economy and finance with history, political science, and law for the purpose of preparing themselves for some one of the several professions or careers to which this group of studies naturally leads.

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*The courses in these three subjects are, for convenience, enumerated together.

Industry and Commerce.—The courses in Industry and Commerce have for their special object the study of organization and processes of modern business. They are closely related to economics, both as a study of wealth production and as an account of the application of economic principles in industrial society. Some of them are technical in character and are intended to rank as semi-professional courses.

Sociology.—Work in Sociology may begin with either Course 19 or Course 12. The latter should be chosen by those who care only for the practical aspects of the subject, and who intend to take only one course. Neither course should be elected until the junior year.

FIRST SEMESTER

2. Elements of Political Economy. Introductory to all other courses in Political Economy. Lectures and quiz. Six quiz sections. *Four hours.* Professor TAYLOR and Dr. SMALLEY.

5. Problems in Political Economy. The immigration problem, industrial crises, free trade and protection, the railway problem, the monopoly or trust problem, and taxation. Lectures and quiz. Three quiz sections. *Four hours.* Professor ADAMS.

Courses 5 and 5*a* are given in alternate years.

[5*a*. Social and Industrial Reforms. Co-operation, profit-sharing, communism, socialism, factory legislation, workingmen's insurance, trades-unions, and industrial federation. Lectures and quiz. *Four hours.* Professor ADAMS.

Omitted in 1904-1905.]

9. Theory and History of Money. *Two hours.* Professor TAYLOR.

12. Economic Theory. Advanced Course. Ingram's *History of Political Economy. Two hours.* Professor TAYLOR.

14. Seminary in Finance: Finances of the Federal Government. *Two hours.* Professor ADAMS.

15. Corporations. A study of corporations as a phase of industrial society. Lectures, assigned reading, and quiz. *Two hours* Dr. SMALLEY.

19. Principles of Sociology. A systematic study of the underlying principles of social science. Cooley's *Human Nature and the Social Order.* Lectures and quiz. Three quiz sections. *Four hours.* Professor C. H. COOLEY.

21. Historical Development of Sociological Thought; study of Comte, Spencer, Ward, Giddings, and others. For advanced students. *Two hours.* Professor C. H. COOLEY.

21*a*. Special work in Sociology with Graduate Students. Especially designed to meet the wants of candidates for the doctor's degree. Professor C. H. COOLEY.

23. Social Development of the Church. The relation of the church to the rest of society, both in the past and at the present time. For advanced students. Professor C. H. COOLEY.

Course 23 must be preceded by Course 19.

29. The Principles of Industry. A description and examination of (1) the physical factors in wealth production, such as the laws of matter and force, raw materials, sources of motive power, topography, climate, and geography; (2) the human factors, such as the physical and mental condition of the population, and the social, ethical, and political forces in their relation to industry. Lectures and quiz. *Three hours.* Professor JONES.

31. The Resources and Extractive Industries of the United States. A study of the natural and social resources of the United States, and of the chief extractive industries, with a view to determining their location, present condition, and relations to each other. Lectures and assigned readings. *Three hours.* Professor JONES.

33*a*. The Distributive Industries of the United States. The marketing of agricultural products. A study of the institutes of commerce. The various systems of marketing agricultural products, *viz.*, commission selling, co-operation, public market, private market, contract, and speculation are discussed. Lectures and assigned readings. *Two hours.* Professor JONES.

33*c*. Wholesale Trade. A description of brokerage, jobbing, commission selling, general and special stores, department stores, and mail-order houses. The principles and the practice of American wholesale establishments are discussed in detail. *Two hours.* Professor JONES.

41. Commercial Law. The fundamental principles of law, so far as these principles pertain to the ordinary activities of business life. Lectures, text-book, and quiz. *Two hours.* Dr. SMALLEY.

51. Lectures on Insurance. *Two hours.* Assistant Professor GLOVER.

The aim in Course 51 is to present such information as to transactions in insurance, annuities, and loans as may be of interest to the general student. The treatment calls for no mathematics beyond the elementary algebra required for entrance to the University.

53. Theory of Annuities and Insurance (I). Assistant Professor GLOVER.

For further information see Course 53 in Mathematics.

60. Seminary in Commerce. Professor JONES.

SECOND SEMESTER

3. History of the Development of Industrial Society. A study of English industrial history from the Twelfth Century to the present time, designed to show how modern industrial cus-

toms and rights came into existence. Lectures and quiz. Three quiz sections. *Three hours.* Professor ADAMS and Dr. SMALLEY.

Course 3 should be preceded by Course 2 and by a study of English history.

4. Principles of Finance. Public expenditures, public revenue, and public credit. Three quiz sections. *Three hours.* Professor TAYLOR.

6. Transportation Problems. The social and industrial significance of modern transportation, the development of railway transportation in this country and in Europe; the administrative and legislative organization of railway systems; the history of the railway problems of the United States; control of railways through commissions. Lectures and quiz. Three quiz sections. *Three hours.* Professor ADAMS.

9*a*. Theory and History of Banking. The nature and social functions of banking, the natural laws of banking phenomena, systems of regulation, etc. *Two hours.* Professor TAYLOR.

12*a*. Economic Theory. Advanced course. The history of opinion on the leading problems. *Two hours.* Professor TAYLOR.

[17. Seminary in Economics. Continuation of Course 14. *Two hours.* Professor ADAMS.

Omitted in 1904-1905.]

22. Problems in Sociology. A study of the laws of population, degeneration, the liquor problem, poor relief (public and private), vagrancy, crime and penology, the divorce problem, the assimilation of the foreign element in American population, the development of cities, the tenement question, slums, social settlements, and other sociological questions of present interest. Lectures, quiz, and assigned reading. Five quiz sections. *Four hours.* Professor C. H. COOLEY.

24. Psychological Sociology. For advanced students. *Two hours.* Professor C. H. COOLEY.

24*a*. Special Work in Sociology with Graduate Students. Designed especially to meet the wants of candidates for the doctor's degree. Professor C. H. COOLEY.

30. The Principles of Industry. Continuation of Course 29. The fundamental technical and economic laws governing the chief groups of industry: agriculture, animal industry, the forest industry, fisheries, mining, and manufacture. The interaction of industries; the modern form of localization and specialization (economic geography). Lectures and quiz. *Three hours.* Professor JONES.

32. The Manufactures of the United States. A discussion of the evolution, present location, and condition of our chief manufacturing industries, and of the relations of these industries to one another, to sources of raw materials, to transportation and market facilities, and to foreign trade. Lectures and assigned readings. *Three hours.* Professor JONES.

33*b*. The Distributive Industries of the United States. The requirements of marketing as they affect the technique of manufacturing are discussed, together with the principles governing the determination of price and quality. The outlets employed in direct and indirect selling and the methods of stimulating trade are described in detail. All efforts to regulate competition in the sale of products, whether by trade-marks, the factor system, curtailment and price agreements, pools, consolidations, or through the laws of unfair trade are considered. *Two hours.* Professor JONES.

33*d*. Retail Trade. *Two hours.* Professor JONES.

[34. Technique of Foreign Trade. *Two hours.* Professor JONES. Omitted in 1904-1905.]

38. Business Organization and Accounting. Lectures and quiz. *One hour.* Mr. PARSONS.

42. Commercial Law. Continuation of Course 41. Lectures, textbook, and quiz. *Two hours.* Dr. SMALLEY.

52. Mathematics of Insurance and Statistics. *Two hours.* Assistant Professor GLOVER.

Course 52 is open to those who have completed Courses 1 (or 1E) and 2 (or 2E) in mathematics. It includes an elementary treatment of the following subjects: Interest, interpolation, averages, mortality tables, annuities, computation of life insurance premiums, and reserves.

54. Theory of Annuities and Insurance (II). *Two hours.* Assistant Professor GLOVER.

For further information see Course 54 in Mathematics.

60. Seminary in Commerce. Professor JONES.

INTERNATIONAL LAW

FIRST SEMESTER

1. Lectures on International Law. *Two hours.* President ANGELL.

Course 1 is open only to those who have completed two courses in History; Course 2 is especially recommended as one of the two.

SECOND SEMESTER

2. History of Treaties. *Two hours.* President ANGELL.

Course 2 must be preceded by Course 1.

BIBLIOGRAPHY

FIRST SEMESTER

1. Historical, Material, and Intellectual Bibliography. Lectures. *One hour.* Professor R. C. DAVIS.

MATHEMATICS

Courses 1E, 2E, 3E, 4E, 5E, and 6E are identical with courses prescribed for students in the Department of Engineering. Courses 1, 2, 3, and 4, to be taken in their order, are intended for other students.

Courses 1, 1E, *1a*, 2, 2E, *2a*, 3, 3E, 4, 4E, 5E, 6E, 51, and 52 are intended primarily for undergraduates; Courses 5, 7, 8, 9, 10, 12, 13, 16, 19, 20, 25, 26, 27, 28, 53, and 54 are for undergraduates and graduates; Courses 11, 14, 17, 18, 21, 22, and 24 are primarilv for graduates, though undergraduates of exceptional ability are admitted by special permission.

FIRST SEMESTER

1. Plane Trigonometry and Algebra. Six sections. *Four hours.* Professor MARKLEY, Mr. BUTTS, Dr. RUNNING, Mr. ESCOTT, Mr. MARSHALL, and Dr. BRADSHAW.

1E. Algebra and Analytic Geometry (I). Fourteen sections. *Four hours.* Mr. BUTTS, Dr. PIERCE, Dr. RUNNING, Dr. KARPINSKI, Dr. FIELD, Mr. ESCOTT, Mr. MARSHALL, and Dr. BRADSHAW.

1a. Plane Trigonometry. Seven sections. *Two hours.* Mr. BUTTS, Dr. PIERCE, Dr. RUNNING, Dr. KARPINSKI, Mr. MARSHALL, and Dr. BRADSHAW.

3. Calculus (I). *Four hours.* Professor BEMAN.

3E. Calculus. Ten sections. *Five hours.* Professors ZIWET and MARKLEY, Assistant Professor GLOVER, Mr. BUTTS, Dr. PIERCE, Dr. RUNNING, Mr. ESCOTT, and Mr. MARSHALL.

5. Solid Analytic Geometry. *Two hours.* Professor BEMAN.

5E. Calculus and Mechanics (II). Seven sections. *Three hours.* Professor ZIWET, Assistant Professor GLOVER, and Mr. BUTTS.

7. Projective Geometry. (I). *Three hours.* Professor ZIWET.

9. Differential Equations. *Three hours.* Professor BEMAN.

11. Theory of Functions of Real Variables and Introduction to Theory of Functions of a Complex Variable. *Three hours.* Professor MARKLEY.

13. Higher Algebra (I). *Three hours.* Assistant Professor GLOVER.

17. Theory of the Potential. *Three hours.* Professor ZIWET.

19. Teachers' Seminary. Algebra. *Two hours.* Professor BEMAN.

Course 19 is open to those who have completed Courses 1, 2, 3, 4, or 1E, 2E, 3E, 4E.

21. Advanced Differential and Integral Calculus (I). *Two hours.* Professor BEMAN.

25. Differential Geometry (I). *Credit arranged.* Dr. PIERCE.

51. Lectures on Insurance. *Two hours.* Assistant Professor GLOVER.

Course 51 involves no knowledge of mathematics beyond the entrance requirements. For description see Course 51 in Political Economy.

53. Theory of Annuities and Insurance (I). *Two hours.* Assistant Professor GLOVER.

Course 53 is open to those who have completed Courses 3 (or 3E) and 4 (or 4E). It embraces a detailed study of the mathematical theory of interest and life contingencies.

SECOND SEMESTER

2. Plane Analytic Geometry. Six sections. *Four hours.* Professor MARKLEY, Mr. BUTTS, Dr. RUNNING, Mr. ESCOTT, Mr. MARSHALL, Dr. BRADSHAW.
2E. Analytic Geometry (II). Fourteen sections. *Four hours.* Mr. BUTTS, Dr. PIERCE, Dr. RUNNING, Dr. KARPINSKI, Dr. FIELD, Mr. ESCOTT, Mr. MARSHALL, and Dr. BRADSHAW.
2*a*. Spherical Trigonometry. *Two hours.* Mr. MARSHALL.
4. Calculus (II). *Four hours.* Professor BEMAN.
4E. Calculus and Mechanics (I). Ten sections. *Five hours.* Professors ZIWET and MARKLEY, Assistant Professor GLOVER, Mr. BUTTS, Dr. PIERCE, Dr. RUNNING, Mr. ESCOTT, and Mr. MARSHALL.
6E. Calculus and Mechanics (III). Seven sections. *Two hours.* Professor ZIWET, Assistant Professor GLOVER, and Mr. BUTTS.
8. Projective Geometry (II). *Three hours.* Professor ZIWET.
10. Quaternions. *Credit arranged.* Professor BEMAN.
12. Higher Algebra (II). *Three hours.* Assistant Professor GLOVER.
14. Theory of Functions of a Complex Variable. *Three hours.* Professor MARKLEY.
16. Advanced Mechanics. *Three hours.* Professor ZIWET.
18. Higher Plane Curves. *Two hours.* Professor BEMAN.
20. Teachers' Seminary. Geometry. *Two hours.* Professor BEMAN. See note to Course 19 in first semester.
22. Advanced Differential and Integral Calculus (II). *Two hours.* Professor BEMAN.
24. Linear Differential Equations. *Two hours.* Professor BEMAN.
26. Differential Geometry (II). *Credit arranged.* Dr. PIERCE.
28. Theory of Numbers. *Two hours.* Mr. ESCOTT.
52. Mathematics of Insurance and Statistics. *Two hours.* Assistant Professor GLOVER.

Course 52 is open to those who have completed Courses 1 (or 1E) and 2 (or 2E). For description see Course 52 in Political Economy.

54. Theory of Annuities and Insurance (II). *Tu, Th,* at 10. Room 19, U. H. Assistant Professor GLOVER.

This course must be preceded by Course 53, of which it is a continuation.

PHYSICS

Courses designated by E are identical with courses prescribed for students in the Department of Engineering; those designated by M are intended for students in the departments of medicine.

FIRST SEMESTER

1. Mechanics, Sound, and Light. Lectures and recitations. Four sections. *Four hours.* Professor J. O. REED.

In Courses 1 and 1M a knowledge of plane trigonometry is essential.

1M. Mechanics, Sound, and Light. *Three hours.* Professor J. O. Reed.

2E. Heat and Electricity. *Five hours.* Lectures and recitations. Professor Carhart and Dr. Randall.

Course 2E must be preceded by Course 1 or 1E.

3. Physical Laboratory Work for Beginners. *Two* or *three hours.* Dr. Randall, Mr. Morehouse, and Mr. Mellencamp.

3E. Laboratory Work in Mechanical and Electrical Measurements. *Three hours.* Mr. Morehouse, Mr. Henderson, and Mr. Colby.

Course 3 must be preceded or accompanied by Course 1, and Course 3E by Course 2E. One additional hour a week is devoted to a lecture or a recitation on the methods employed in the laboratory.

5. Electrical Measurements. Lectures, recitations, and laboratory work. *Four hours.* Dr. A. W. Smith and Mr. Morehouse.

Course 5 must be preceded by Courses 1, 2, and 3*a* or 3*b*. A knowledge of calculus is also required.

6. Sound. Lectures and laboratory work. *Four hours.* Professor J. O. Reed.

Course 6 must be preceded by Course 1 and by Course 3*a* or 3*b*. A knowledge of calculus is also required.

7. Intermediate Course in Electricity and Magnetism. *Two hours.* Professor Carhart.

Course 7 must be preceded by Course 2. A knowledge of calculus is also required.

8. Heat. Laboratory work. *Two hours.* Dr. Randall.

Course 8 must be preceded by Course 2.

9. Theory of Heat: Preston. *Two hours.* Dr. Randall.

13. Geometrical Optics. *Two hours.* Professor J. O. Reed.

Course 13 must be preceded by Course 1. A knowledge of calculus is required.

14. Sound. Advanced laboratory work. *Two hours.* Professor J. O. Reed.

Course 14 must be preceded by Course 6.

18. Electrochemistry. Modern theories studied from the point of view of physics. *Three hours.* Professor Carhart.

19. Physical Colloquium. Professors Carhart and J. O. Reed.

Reports on original research, together with analysis and discussion of important articles in current physical literature. All instructors and assistants in the department take part in the Physical Colloquium. While intended primarily for graduate students, it is also open to undergraduates doing advanced work.

20. Advanced Course in Electricity and Magnetism. *Hours arranged.* Professor Patterson.

A knowledge of calculus is required.

SECOND SEMESTER

1E. Mechanics, Sound, and Light. Lectures and recitations. *Five hours.* Professor CARHART and Dr. RANDALL.

In Course 1E a knowledge of plane trigonometry is essential.

2. Heat and Electricity. Lectures and recitations. Three sections. *Four hours.* Professor J. O. REED.

Course 2 must be preceded by Course 1; it also presupposes some knowledge of general chemistry.

2M. Heat and Electricity. Lectures and recitations. *Three hours.* Professor J. O. REED.

Course 2M is a continuation of Course 1M.

3. Physical Laboratory Work for Beginners. Repetition of Course 3. *Two* or *three hours.* Dr. RANDALL and Mr. MOREHOUSE.

3E. Laboratory Work in Mechanical and Electrical Measurements. *Three hours.* Dr. RANDALL and Mr. MOREHOUSE.

4. Primary and Secondary Batteries. Recitations and laboratory work. Two sections. *Three hours.* Dr. A. W. SMITH.

Course 4 must be preceded by Courses 1, 2, *3a* or *3b,* and a course in General or Analytical Chemistry.

10. Electricity and Magnetism. *Two hours.* Professor PATTERSON.

Course 10 must be preceded by Course 20.

11. Theory of Light: Preston. Recitations and laboratory work. Professor J. O. REED.

Course 11 must be preceded by Course 6.

12. Electrical Measurements. Continuation of Course 5. Recitations and laboratory work. Dr. A. W. SMITH and Mr. MOREHOUSE.

15. Light. Advanced laboratory work. *Two hours.* Professor J. O. REED.

16. Thermodynamics. *Two hours.* Professor CARHART.

17. Alternating Current Phenomena: Steinmetz. *Two hours.* Professor PATTERSON.

CHEMISTRY

Students who intend to pursue studies in both Chemistry and Physics are advised to begin Physics as early in their course as they can. If Chemistry is to be the leading subject, it is especially advisable to take a course in Physics before Course 3 in Chemistry, and to take in all at least two semesters' study of Physics, for the benefit of its bearing upon the various branches of chemical work.

The courses numbered 1 to 10 give work upon the foundation of chemistry, in its several divisions. A sufficient number of these courses must be completed before entering upon the advanced studies of the science or its special application to the industries and professions. Of the more advanced studies, Courses 13 to 24 are chiefly in General, Inorganic, and Physical Chemistry; Courses 28 to 40 in

Analytical, Technical, and Applied Chemistry; Courses 42 to 51 in Organic Chemistry.

The requirement for the Teacher's Diploma in Chemistry is *Twenty-five hours of work in the department*, selected after conference with the several professors.

FIRST SEMESTER

Foundation Courses in Chemistry.

1. Elementary Inorganic Chemistry. Experimental lectures and recitations. *Two hours.* Professor S. L. Bigelow.

Course 1 must be accompanied by Course *1a.*

1a. Elementary Inorganic Chemistry. Laboratory work and discussions. Four sections. *Two hours.* Mr. Higley, Dr. Hale, and Mr. Houghton.

2b. Elementary Inorganic Chemistry. Lectures and laboratory work. *Three, four,* or *five hours.* Dr. Hale.

Course *2b* is for students who have had some chemistry, but not the full equivalent of Courses 1, *1a*, 2, and *2a*.

3. Qualitative Analysis. Laboratory work and recitations. Two sections. *Seven hours.* Professor Johnson and Mr. H. H. Willard.

Course 3 must be preceded by Courses 1, *1a*, 2, and *2a*.

3a. Qualitative Analysis. Laboratory work and recitations. Two sections. *Ten hours.* Professor Johnson and Mr. H. H. Willard.

Course *3a* must be preceded by Courses 1, *1a*, 2, and *2a*.

5. Quantitative Analysis. Beginning course. Recitations and laboratory work. *Five hours.* Professor Campbell.

Course 5 must be preceded by Course 3.

6. Advanced Inorganic Chemistry. Laboratory work. *Three to seven hours.* Mr. Higley.

Course 6 covers general chemistry in a way best suited for those intending to teach. It must be preceded by Courses 1, *1a*, 2, *2a*, and 3.

7. Chemistry of Carbon Compounds. Lectures. *Five hours.* Professor Gomberg.

Course 7 must be preceded by Courses 1, *1a*, 2, *2a*, and 3, or an equivalent.

9. Inorganic Chemistry. Continuation of Courses 1 and 2. Descriptive and experimental lectures, including selected topics. *Three hours.* Mr. Higley.

Course 9 must be preceded or accompanied by Course 3.

General and Physical Chemistry.

13. Elementary Physical Chemistry. The determination of molecular weights by vapor density, freezing point, and boiling point methods, conductivity of electrolytes, optical measurements, thermometry, etc. Both semesters. Laboratory work and recitations. *Four hours.* Assistant Professor Hulett.

Course 13 must be preceded or accompanied by Courses 5 and 8.

14. Electrochemistry. The conductivity of electrolytes, electromotive force, study of electrolysis, etc. Lectures and laboratory work. *Three hours.* Assistant Professor HULETT.

Course 14 must be preceded by Courses 5 and 8 and Course 5 in Physics.

15. Laboratory Work in Advanced Inorganic Chemistry, including inorganic preparations. *Credit arranged.* Professor S. L. BIGELOW and Mr. HIGLEY.

Course 15 must be preceded by Course 6, and is intended for those who elected Course 6 for less than the maximum number of hours, and also for undergraduates and graduates who have received equivalent preparation elsewhere.

16. Laboratory Research in Inorganic Chemistry. *Credit arranged.* Professor S. L. BIGELOW and Mr. HIGLEY.

17. Laboratory Research in Organic Chemistry. *Credit arranged.* Dr. HALE.

18. Laboratory Research in Physical Chemistry. *Credit arranged.* Professor BIGELOW.

Courses 16, 17, and 18 are intended for advanced students. Students electing these courses must be able to read German and French, and must have a knowledge of inorganic, organic, and analytical chemistry.

19. Chemical Colloquium. *Hours arranged.* Professor PRESCOTT.

The review of important researches recently published, with critical discussions. Reports upon investigations in this laboratory. All the instructors of the department are members of the Colloquium, and it is conducted by the several professors. Graduate students and those advanced in chemistry are eligible to membership.

20. German Reading. Sight reading in current literature. *One hour.* Mr. HIGLEY.

This course is intended for advanced students in chemistry.

21. Research in Physical Chemistry. *Credit arranged.* Assistant Professor HULETT.

23. Advanced Theoretical and Physical Chemistry, with special reference to electrochemistry and chemical dynamics. Lectures. *Two hours.* Assistant Professor HULETT.

Course 23 is a continuation of Course 8, and must be preceded by Courses 8 and 13.

25. Stereochemistry, including a general study of isomerism. Lectures. *Two hours.* Dr. HALE.

Course 25 must be preceded by Course 7 or 10.

Analytical and Applied Chemistry.

28. Advanced Quantitative Analysis. Laboratory work. *Five hours.* Professor CAMPBELL.

Course 28 must be preceded by Course 5 and by Course 2 in Physics.

29. Iron and Steel Analysis. Laboratory work. *Five hours.* Professor CAMPBELL.

Course 29 is open to those who have taken Course 28.

30. Special Methods in Iron and Steel Analysis. Continuation of Course 29. Laboratory work. *Five hours.* Professor CAMPBELL.

31. Independent Work in Mineral Analysis. Laboratory work. *Five hours.* Professor CAMPBELL.

Course 31 must be preceded by Course 28. Mineralogy 2 is strongly recommended.

32. Technical Examination of Gold and Silver Ores by the Fire Assay. Laboratory work with lectures and reading. *Two hours.* Assistant Professor WHITE.

Course 32 must be preceded or accompanied by Course 28. Course 2 in Mineralogy is recommended.

33. Chemical Technology. A study of inorganic industrial chemistry. The chief subjects treated are fuels, water, the acid and alkali industry, cements, and glass. Lectures and assigned reading. *Five hours.* Assistant Professor WHITE.

Course 33 must be preceded by Course 3. Course 8 is recommended.

34. Chemical Reading. Reading and seminary work. *One* or *two hours.* Given in each semester. Professor CAMPBELL.

35. Technical Gas Analysis, including Calorimetry and Photometry. Laboratory work. *Two hours.* Assistant Professor WHITE.

Course 35 must be preceded by Course 5.

36. Original Investigation in Qualitative Analysis. Laboratory work. *Credit arranged.* Professor JOHNSON and Mr. H. H. WILLARD.

Course 36 must be preceded by Courses 3 and 5.

37. Original Investigation. Laboratory work. *Credit arranged.* Professor CAMPBELL and Assistant Professor WHITE

39. Chemical Technology. Laboratory work. Courses are offered in: The manufacture of hydraulic cement, with special reference to relation of composition and temperature of burning to physical properties; coal, gas, and by-products: influence of heat and mechanical treatment on constitution of iron and steel; the chemistry of beet sugar, with special reference to its manufacture. *Credit arranged.* Professors CAMPBELL and GOMBERG, Assistant Professor WHITE, Dr. DUNLAP, and Mr. SMEATON.

Course 39 must be preceded by Courses 28 and 33, and if the subject chosen is in organic technology, by Courses 7 and 38.

M. Qualitative Analysis. Laboratory work and recitations. *Four hours.* Dr. DUNLAP.

Course M is especially designed for students who are pursuing a combined Literary-Medical course.

Organic Chemistry.

42. Organic Synthesis. Laboratory work. *Three, four,* or *five hours.* Professor Gomberg.

    Course 42 must be preceded by Course 5, and preceded or accompanied by Course 7.

43. Organic Synthesis and Ultimate Analysis. Continuation of Course 42. Laboratory work and reading. *Three, four,* or *five hours.* Professor Gomberg.

45. Special Methods in Organic Analysis. Food Analysis and Toxicology. Laboratory work with assigned reading. *Three, four,* or *five hours.* Professor Prescott.

    Course 45 must be preceded by Course 44.

47. Organic Analysis. The technical examination of various organic products used in the arts, manufactures, etc. Laboratory work with collateral reading. *Credit arranged.* Dr. Dunlap.

    Course 47 must be preceded by Courses 5 and 7 or an equivalent.

49. The History of Chemistry. *Two hours.* Professor Prescott.

    Course 49 is designed for advanced students.

50. Original Investigation in Organic Chemistry. Laboratory work and library reading. *Credit arranged.* Professor Prescott.

51. Original Investigation in Organic Chemistry. Laboratory work. *Credit arranged.* Professor Gomberg.

    Courses 50 and 51 must be preceded by Courses 7 and 42.

SECOND SEMESTER

Foundation Courses in Chemistry.

2 and 2*a*. Elementary Inorganic Chemistry. Continuations of Courses 1 and 1*a*. (See First Semester.)

Course 2 must be accompanied by Course 2*a*.

2*b*. Elementary Inorganic Chemistry. (See First Semester.)

3. Qualitative Analysis. Laboratory work and recitations. *Seven hours.* Professor Johnson and Mr. H. H. Willard.

   Course 3 must be preceded by Course 1, 1*a*, 2, and 2*a*.

4. Advanced Qualitative Analysis. Continuation of Course 3. Electrolysis and rarer metals. Recitations and laboratory work. *Three hours.* Professor Johnson.

5. Quantitative Analysis. (See First Semester.)

6. Laboratory Work in Advanced Inorganic Chemistry. (See First Semester.)

8. Elementary Theoretical and Physical Chemistry. Lectures. *Four hours.* Assistant Professor Hulett.

   Course 8 must be preceded by Course 3.

9. Inorganic Chemistry. (See First Semester.)

10. The Chemistry of Carbon Compounds. Lectures. *Four hours.* Professor Prescott.

    Course 10 must be preceded by Courses 1, 1*a*, 2, 2*a*, and 3, or an equivalent.

General and Physical Chemistry.

13. Elementary Physical Chemistry. Laboratory work. (See First Semester.)

14. Electrochemistry. Laboratory work. (See First Semester.)

15. Laboratory Work in Inorganic Chemistry. (See First Semester.)

16. Laboratory Research in Inorganic Chemistry. (See First Semester.)

17. Laboratory Research in Organic Chemistry. (See First Semester.)

18. Laboratory Research in Physical Chemistry. (See First Semester.)

19. Chemical Colloquium. (See First Semester.)

20*a*. German Reading. *One hour*. Mr. HIGLEY.
Course 20*a* is a continuation of Course 20.

24. Theory and Practice of Exact Measurements, with laboratory practice in glass blowing, calibration, and construction of apparatus. Lectures and laboratory work. *Two* or *three hours*. Assistant Professor HULETT.
Special permission must be obtained from the instructor in order to elect this course.

Analytical and Applied Chemistry.

28. Advanced Quantitative Analysis. (See First Semester.)

29. Iron and Steel Analysis. (See First Semester.)

30. Special Methods in Iron and Steel. (See First Semester.)

31. Mineral Analysis. (See First Semester.)

34. Chemical Reading. (See First Semester.)

35. Technical Gas Analysis. (See First Semester.)

36. Investigation in Qualitative Analysis. (See First Semester.)

37. Investigation in Quantitative Analysis. (See First Semester.)

38. Chemical Technology. The industrial chemistry of organic compounds. Among the subjects treated are: starch, glucose, and sugar; fermentation and distillation; fats, oils, and soaps; bleaching and dyeing; tanning; paper manufacture. Lectures and assigned reading. *Five hours*. Assistant Professor WHITE.
Course 38 must be preceded by Courses 7 and 33.

39. Chemical Technology. Laboratory work. (See First Semester.)

M. Qualitative Analysis. (See First Semester.)

Organic Chemistry.

42. Organic Synthesis. (See First Semester.)

43. Organic Synthesis and Ultimate Analysis. (See First Semester.)

44. The Chemistry of Alkaloids and Drug Assaying. Lectures and laboratory work. *Four* to *seven hours*. Professor SCHLOTTERBECK.
Course 44 must be preceded by Courses 5 and 7.

45. Special Methods in Organic Analysis. (See First Semester.)
    Course 45 must be preceded by Course 44.
47. Organic Analysis of Industrial Products. (See First Semester.)
48. The Benzene Derivatives. Lectures. *One hour.* Professor GOMBERG.
    Course 48 must be preceded by Course 7, and preceded or accompanied by Course 42.
50. Laboratory Research in Organic Chemistry. (See First Semester.)
51. Laboratory Research in Organic Chemistry. (See First Semester.)

METALLURGY

FIRST SEMESTER

1. Fuel and Refractory Material; Iron and Steel. *Three hours.* Professor CAMPBELL.
   Course 1 must be preceded by Courses 1, 1*a*, 2, and 2*a* in Chemistry.
2. Micro-Metallography. The influence of mechanical and heat treatment upon the microstructure and properties of metals and alloys. Lectures and reading. *One hour.* Mr. SMEATON.
   Course 2 must be preceded by Course 1.
3. Micro-Metallography. The microscopic structure of metals and alloys as related to their physical and chemical properties. Laboratory work. *One hour.* Mr. SMEATON.
   Course 3 must be preceded or accompanied by Course 2.

SECOND SEMESTER.

2. Lectures on Micro-Metallography. (See First Semester.)
3. Micro-Metallography. Laboratory work. (See First Semester.)

PHYSIOLOGICAL CHEMISTRY, BACTERIOLOGY, AND HYGIENE

The courses in these subjects are arranged for the most part to meet the wants of students in the Department of Medicine and Surgery, and of students who propose to study medicine in the future.

FIRST SEMESTER

2. General Bacteriology. Lectures. *Three hours.* Professor NOVY.
3. Practical Bacteriology. Laboratory work. *Three hours.* Professor NOVY, Mr. LEVY, and Mr. S. F. EDWARDS.
   Course 3 is designed especially for students who propose to study medicine, and is open to others only by permission.
4. Bacteriology. Special methods. Laboratory work. *Three hours.* Professor NOVY.
   Course 4 must be preceded by Course 3.

4*a*. Bacteriology. Continuation of Course 4. *Credit arranged.* Professor Novy.
5. Water Analysis. Laboratory work. *Three hours.* Dr. Eastwood.
6. Food Analysis. Laboratory work. *Credit arranged.* Professor Vaughan and Dr. J. F. Munson.
7. Research Work. *Credit arranged.* Professors Vaughan and Novy.
8. Physiological Chemistry. Lectures. *Three hours.* Professor Vaughan.
9. Physiological Chemistry. Laboratory work. *Three hours.* Professor Novy and Mr. Nims.
10. Advanced Physiological Chemistry. Laboratory work. *Three hours.* Professor Novy and Mr. Nims.

SECOND SEMESTER

1. General Hygiene. Lectures. *Three hours.* Professor Vaughan.
3. Practical Bacteriology. (See First Semester.)
4. Bacteriology. Special methods. (See First Semester.)
4*a*. Bacteriology. Continuation of Course 4. (See First Semester.)
5. Water Analysis. (See First Semester.)
6. Food Analysis. (See First Semester.)
7. Research Work. (See First Semester.)
9. Physiological Chemistry. Laboratory work. (See First Semester.)
10. Advanced Physiological Chemistry. (See First Semester.)

ASTRONOMY

Courses 1 and 2 are elementary.

FIRST SEMESTER

1. General Astronomy. *Three* or *four hours.* Professor A. Hall.
5. Spherical Astronomy. Precession, nutation, aberration, theory of instruments. *Three hours.* Professor A. Hall.
6. Theory and Computation of Orbits. *Five hours.* Professor A. Hall.
13. Method of Least Squares, and Theory of Interpolation. *Two hours.* Professor A. Hall.

EITHER FIRST OR SECOND SEMESTER

4. Practical Astronomy. Use of sextant and transit. *Three hours.* Professor A. Hall.
9. Extended Practical Course. *Credit arranged.* Professor A. Hall.

SECOND SEMESTER

2. Elementary Practical Course. *Two hours.* Professor A. Hall.
8. Spherical Astronomy. Continuation of Course 5. *Three hours.* Professor A. Hall.
11. Mathematical Theory of Planetary Motion. *Three hours.* Professor A. Hall.

MINERALOGY

FIRST SEMESTER

1. Mineralogy. Lectures and laboratory work. *Two hours.* Assistant Professor **Kraus.**
   Course 1 presupposes a knowledge of the elements of chemistry. It is intended for students who wish to get a general knowledge of some of the more common minerals. It is not introductory to Course 2. This course is also given in the second semester.
3. Crystal Measurements. Lectures and laboratory work. *Three hours.* Assistant Professor **Kraus.**
   Course 3 must be preceded by Course 2. It is also given in the second semester and may be pursued for either one or two semesters.
4. Advanced work along such lines as may be agreed upon. *Credit arranged.* Assistant Professor **Kraus.**
   Course 4 must be preceded by Course 2.

SECOND SEMESTER

1. Mineralogy. Lectures and laboratory work. *Two hours.* Assistant Professor **Kraus.**
   See note to Course 1 in first semester.
2. Mineralogy. Lectures and laboratory work. *Five hours.* Assistant Professor **Kraus.**
   Course 2 is open only to those who are taking, or have taken, a course in analytical chemistry. It does not require any previous knowledge of mineralogy, but is intended for students who wish a broader knowledge of the subject than can be obtained in Course 1.
3. Crystal Measurements. Lectures and laboratory work. *Three hours.* Assistant Professor **Kraus.**
   See note to Course 3 in first semester.
4. Advanced work along such lines as may be agreed upon. *Credit arranged.* Assistant Professor **Kraus.**
   See note to Course 4 in first semester.

GEOLOGY

Courses 1, 2, 6, 7, and 8 are elementary courses intended primarily for undergraduate students. Course 6 meets the requirements for students of engineering. Courses 3, 4, and 9 are for graduate students, and undergraduates who have taken the elementary work indicated in each case, or an equivalent. Special courses are arranged for graduate students.

FIRST SEMESTER

1. Elements of Geology. Dynamic and Structural Geology pertaining especially to the United States. Text-book, illustrated lectures, recitations, reading, and a short thesis. *Three hours.* Professor **Russell.**

2. Physiography. Teachers' Course. Lectures on the principles of physiography, with special reference to the geography of the United States; illustrated by photographs, models, maps, etc. Reviews of books on geography and travel required. *Three hours.* Professor RUSSELL.

3. Advanced Geology. Reading and conferences, with laboratory and field work. *Two hours.* Professor RUSSELL.

   Course 3 must be preceded by Courses 1 or 6, and 8.

4. Physical Geology. Volcanoes, igneous intrusions, metamorphism, etc. Text-book, conferences, and reading. *Two hours.* Professor RUSSELL.

   Course 4 must be preceded by Course 1 or 6.

SECOND SEMESTER

6. Elements of Geology. Dynamic and Structural Geology. Lectures, recitations, reading, and short theses. *Three hours.* Professor RUSSELL.

   Course 6 is open only to engineering students.

7. Physiography. Teachers' Course. Reading and conference on the principles of physiography pertaining to the atmosphere and ocean. Special attention given to meteorology. *Three hours.* Professor RUSSELL.

   Course 7 is a continuation of Course 2.

8. Elements of Geology. Historical Geology, dealing principally with the geological history of the United States. Text-book, illustrated lectures, recitations, and a short thesis. *Three hours.* Professor RUSSELL.

   Course 8 is a continuation of Course 1.

9. Glacial Geology. Lectures on existing glaciers and the records and history of the glacial epoch. Thesis. Field excursions. *Two hours.* Professor RUSSELL.

   Course 9 must be preceded by Course 1 or 6.

10. Economic Geology. Lectures on the mode of occurrence, theories of deposition, concentration, etc., of metallic and non-metallic minerals, building stones, etc., of commercial value. Special attention is given to the mineral wealth of Michigan. *Two hours.* Dr. LANE.

    Course 10 must be preceded by Course 1 or 6.

GENERAL BIOLOGY

FIRST SEMESTER

1. Elements of Biology. A study of typical species of plants and animals with reference to structure, function, development, and relationship. Lectures and laboratory work. *Four hours.* Dr. POLLOCK and Dr. DUERDEN.

SECOND SEMESTER

2. Elements of Biology. Continuation of Course 1. Lectures and laboratory work. *Four hours.* Dr. POLLOCK and Dr. HOLMES.

ZOOLOGY

All courses in Zoology, with the exception of Courses 3, 3*a*, and 7, should be preceded by Courses 1 and 2 in General Biology or their equivalent. The courses in General Biology may be accompanied by Courses 3 and 3*a*. The second year's work may be varied to suit individual needs. It may, for instance, consist of either (1) Invertebrate Zoology (Course 4) together with Courses 11 and 19, or of (2) Vertebrate Zoology (Courses 8 and 8*a*) or of (3) Physiological Zoology (Course 10), followed by Embryology (Course 9) or Anatomy (Courses 5 and 5*a*), and accompanied by Morphogenesis (Course 11). Two of the sets of courses mentioned above may be taken in a single year. The remaining courses should be taken under advice of the instructors.

For the Teacher's Diploma in Zoology, in addition to Courses 1 and 2 in General Biology, Courses 4*a* or 4*b*, 8, 8*a*, 9 or 10, 11, 19, (***twenty-one hours***) are required. Courses 18 and 18*a* are of special value to teachers.

FIRST SEMESTER

1. Elements of Animal Biology. A study of protoplasm, of the cell and its activities, and of the structure, development, and biology of invertebrate animal types selected to illustrate general principles. Lectures and laboratory work. *Two hours.* Dr. DUERDEN.

Course 1 is identical with the zoological part of Course 1 in General Biology.

3. Organic Evolution. Illustrated lectures, serving as an introduction to zoology. Evidences for evolution drawn from classification, structure, development, palæontology, etc. Natural selection, inheritance of acquired characters, and the influence of environment. *One hour.* Professor REIGHARD.

3*a*. Heredity. An exposition and critical discussion of the results of recent investigations in heredity. Special attention is paid to the following topics: Physical and mental inheritance in man, Mendel's law, the law of ancestral inheritance, the practical application of known principles of heredity in animal breeding. Lectures. *Two hours.* Dr. PEARL.

4. Invertebrate Zoology. The structure, classification, distribution, and activities of invertebrate animals.

Course 4 may be elected as Course 4*a* or as Course 4*b*, which are given in alternate years.

4*a*. Protozoa, cœlenterates, worms, crustaceans, and several smaller groups. Lectures, laboratory work, and demonstrations. *Five hours.* Dr. HOLMES.

[4*b*. Molluscs, echinoderms, myriapods, arachnids, and insects. Omitted in 1904-1905.]

Courses 4*a* and 4*b* complete the work in invertebrate zoology, begun in the first course in General Biology.

8. Vertebrate Zoology. The structure, classification, distribution, and habits of vertebrate animals (fishes, amphibians, and reptiles). Lectures with practical work in field and laboratory. *Four hours.* Professor REIGHARD.

10. Physiological Zoology. The general physiology of animals, dealing with the processes occurring in living matter. Lectures and laboratory work. *Four hours.* Dr. PEARL.

6. Statistical Zoology. The aim of this course is to give the student practical experience in the collection and analysis of biometrical data. Laboratory work, conferences, and occasional lectures. *Credit arranged.* Dr. PEARL.

12. Current Literature of Zoology. The instructors and advanced students form a Journal Club, which holds weekly meetings. Research work done by members of the zoological staff, and important current papers are made the subjects of reports and of informal discussion. *One hour.* Professor REIGHARD.

14. Research Work.

For the year 1904-1905 the following lines of work are offered: The embryology of the lower vertebrates; the behavior of fishes and other lower vertebrates in their natural environment. Professor REIGHARD.

Cytology; the behavior of animals, especially invertebrates. Dr. HOLMES.

The investigation of experimental problems by biometrical methods. Dr. PEARL.

The Actinaria and Madreporaria. Dr. DUERDEN.

Course 14 may be elected as 14*a, two hours;* 14*b, three hours;* 14*c, five hours;* 14*d, ten hours.*

16. Systematic Zoology. A systematic study of the local fauna of the region about Ann Arbor.

The Fishes: Professor REIGHARD.

The Crustacea: Dr. HOLMES.

The course may be elected as 16*a, two hours,* or 16*b, three hours.*

18. Laboratory Methods and Management. *Two hours.* Dr. HOLMES.

22. Morphogenesis. Development, regeneration, and form-regulation. Lectures and discussions. *One hour.* Dr. HOLMES.

Course 22 should be preceded by Course 9 in Embryology or an equivalent.

SECOND SEMESTER

2. Elements of Animal Biology; the Structure, Development, and Biology of a Typical Vertebrate (the frog). Lectures and laboratory work. *Two hours.* Dr. HOLMES and assistants.

Course 2 is identical with the zoological part of Course 2 in General Biology.

19. Field Ecology. An introduction to the study of the relation of animals to their natural environment, as illustrated by the local fauna. Lectures, field and laboratory work. *Three hours.* Mr. Charles C. Adams.

11. Evolution Problems: Lectures, reading, and conferences. This course aims to give a practical appreciation of the development of the evolution theory since Darwin and of the bearing of that development on other fields of knowledge. *Two hours.* Dr. Holmes.

8*a*. Vertebrate Zoology. Continuation of Course 8. Birds and mammals. Lectures, laboratory and field work. *Four hours.* Professor Reighard.

7. The Fish and Fisheries of Michigan. The fresh water fishes, their habits, commercial value, mode of capture and of propagation. *One hour.* Professor Reighard.

Course 7 is designed for students of forestry.

9. Embryology of Vertebrates. A study of vertebrate development from the comparative standpoint. Lectures, laboratory work, and demonstrations. *Four* or *six hours.* Dr. Duerden.

5. Mammalian Anatomy. The anatomy of the cat. Laboratory and class work. *Four hours.* Dr. Pearl.

5*a*. Vertebrate Comparative Anatomy. Supplementary to Course 5. Lectures and laboratory work. *Two hours.* Dr. Pearl.

6*a*. Statistical Zoology. A continuation of Course 6. *Credit arranged.* Dr. Pearl.

13. Current Literature of Zoology. Continuation of Course 12. *One hour.* Professor Reighard.

15. Research Work in Zoology. Continuation of Course 14. It may be elected as 15*a, two hours;* 15*b, three hours;* 15*c, five hours;* 15*d, ten hours.*

17. Systematic Zoology. Continuation of Course 16. Professor Reighard, Dr. Holmes, Dr. Pearl, and Dr. Duerden.

18*a*. Continuation of Course 18. *Two hours.* Dr. Pearl.

20. The Anthozoa. A special course of four lectures with laboratory work. *One hour.* Dr. Duerden.

BOTANY

Courses 1 and 2 in General Biology must precede all courses in Botany, except Courses 4 and 27.

Courses 1, 2, 3, and 6 are intended primarily for undergraduates. Courses 4, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, and 28 are for graduates and undergraduates. Courses 19, 20, 21, 22, 23, 24, 25, and 26 are primarily for graduates, but undergraduates may be admitted to them by special permission.

Students preparing to teach botany should take Courses 1, 2, 3, 7, 8, 10, 12, 16, 25, 26, and 28. Students preparing for the profession of forestry should take Courses 1, 2, 3, 7, 8, 9, 10, 12, 13, and 14.

FIRST SEMESTER

1. Elements of Biology (Plant Life). A study of the properties and activities of protoplasm, developmental history, evolution of structure and function, and relation to environment. The material for study will be selected from simple organisms, chiefly algæ and fungi. Lectures and laboratory work. *Two hours.* Dr. POLLOCK, Dr. BURNS, and Mr. KAUFFMAN.

Course 1 is identical with the botanical part of Course 1 in General Biology.

1*a*. Lectures, demonstrations, or conferences on groups, the types of which are studied in Course 1. *One hour.* Dr. POLLOCK.

Course 1*a* must be preceded or accompanied by Course 1.

3. Reproduction and Embryology of Flowering Plants. Lectures and laboratory work. *Two hours.* Professor NEWCOMBE.

7. General Morphology and Physiology. Cell structure, tissue structure, and organography; the cell theory, mitosis, and heredity, instruction in technique. Lectures and laboratory work. *Five hours.* Professor NEWCOMBE.

9. Morphology and Classification of Fungi. *Three or more hours.* Dr. POLLOCK.

Courses 4 and 9 are preparatory to research in pathology.

11. Experimental Physiology. Special Problems. *Two or more hours.* Professor NEWCOMBE.

Course 11 is introductory to research.

13. Biological Relations of Plants. Lectures, reviews of recent literature, field studies, and laboratory work. *Two or more hours.* Dr. BURNS.

15. Variation under Natural and Artificial Conditions. Evolution of form and habit in adaptation to environment. Regeneration of lost parts. Cross and self fertilization, hybridization, the production of varieties of cultivated flowers, vegetables, and fruits. Lectures, laboratory and field work. *Two or more hours.* Dr. BURNS.

17. Laboratory Methods and Management. *Two hours.* Professor NEWCOMBE.

19. Investigations in Physiology. This work may be elected as 19*a*, *three hours;* 19*b*, *five hours;* 19*c*, *eight hours;* 19*d*, *ten hours.* Professor NEWCOMBE.

21. Investigations in Mycology and Plant Diseases. This work may be elected as 21*a*, *three hours;* 21*b*, *five hours;* 21*c*, *eight hours;* 21*d*, *ten hours.* Dr. POLLOCK.

23. Investigations in Bionomics. This work may be elected as 23*a*, *three hours;* 23*b*, *five hours;* 23*c*, *eight hours;* 23*d*, *ten hours.* Dr. BURNS.

25. Current Literature of Botany. *One hour.* Professor NEWCOMBE.

Course 25 constitutes a Journal Club in which important papers on botany are reviewed and discussed by the instructors and advanced students.

SECOND SEMESTER

2. Elements of Biology (Plant Life). Continuation of Course 1. embracing the alteration of generations and general biology and physiology of liverworts, mosses, ferns, and gymnosperms. Lectures and laboratory work. *Two hours.* Dr. POLLOCK and Mr. KAUFFMAN.

4. Economic Botany. Relation of the science of botany to industry. Distribution of plants of commercial importance, and laws determining plant distribution. Importation and acclimatization of foreign plants. Variation of raw materials and their improvement by breeding and selection. Origin and propagation of horticultural varieties. Bacteriology in its relation to industry. Important diseases of plants. Lectures, with accompanying demonstrations and lantern views. *Two hours.* Dr. BURNS.

6. Elements of Structural Botany. Lectures and laboratory work. *Three hours.* Professor SCHLOTTERBECK.

8. Mycology and Pathology. A study of the various groups of fungi, their life history and artificial cultivation, and their relation to plant diseases. Lectures and laboratory work. *Three hours.* Dr. POLLOCK.

10. Experimental Physiology. A study of the relation of plants to their environment as manifested by the phenomena of nutrition, growth, and irritability. Lectures and laboratory work. *Three* or *five hours.* Professor NEWCOMBE.

12. Field Ecology. The identification of trees, shrubs, and herbaceous plants, and their grouping into societies; the relation of plants to light, soil, moisture, and the general factors in the environment. *Two hours.* Dr. BURNS.

14. Botanical Survey of the Huron Valley. A systematic study of the local flora. *Two or more hours.* Dr. BURNS.

16. Teachers' Conference and Field Club. Conferences and reports on lists of books, apparatus, material, and methods for high-school laboratories; made under the guidance of different members of the corps; methods of collecting and preserving material and conducting field observations. *One hour.* Professor NEWCOMBE.

18. Laboratory Methods and Management. Continuation of Course 17. *Two hours.* Professor NEWCOMBE.

20. Investigations in Physiology. This work may be elected as *20a, three hours; 20b, five hours; 20c, eight hours; 20d, ten hours.* Professor NEWCOMBE.

22. Investigations in Mycology and Plant Diseases. This work may be elected as ***22a, three hours; 22b, five hours; 22c, eight hours; 22d, ten hours.*** Dr. POLLOCK.

24. Investigation in Bionomics. This work may be elected as *24a, three hours; 24b, five hours; 24c, eight hours;* ***24d, ten hours.*** Dr. BURNS.

26. Current Literature of Botany. Continuation of Course 25. *One hour.* Professor NEWCOMBE.

28. Biological Problems and Theories. The origin of life; theories of heredity; natural and artificial fertilization; development of the individual; mutation; Mendel's law for hybrids; mechanism and vitalism. *One hour.* Professor NEWCOMBE, Dr. POLLOCK, and Dr. BURNS.

    This course of lectures is planned as a popular exposition of biological problems and theories of the present day.

FORESTRY

Course 1 is designed to meet the needs of teachers, students of political economy, and others who wish to acquire a general knowledge of forestry, and is open to students who have completed their second year of residence at the University. All other courses are for graduate students aiming to make forestry a profession, and are not open to undergraduate students. Courses *2a, 2b,* and 2c should be taken in the order named.

FIRST SEMESTER

1. Introduction to Forestry. A general presentation of the subject, its history, objects, and methods, as well as economic importance. Lectures. *Three hours.* Professor ROTH.

2a. Silviculture. Introductory, including the study of soils, climate, and other conditions of site, and their influence on forest growth. *Three hours.* Mr. C. A. DAVIS.

2c. Silviculture. Care of forests, clearing and thinning, protection of forests against fire, insects, and other enemies. *Three hours.* Mr. C. A. DAVIS.

3. Forest Mensuration and Description. Methods of measuring the volume of the individual tree and of entire stands of timber; timber estimating; measurement of the rate of growth of trees and stands; methods and manner of describing a tract of forest so as to render possible its proper management. Lectures, laboratory and field work. *Four hours.* Professor ROTH.

5*a.* Forest Management. General forest surveys and preparation of working plans; administration and regulation of the field and office work in the care of a large tract of timber, and the methods of calculation involved in judging the value of forests and forest operations. Lectures and field work. *Five hours.* Professor ROTH.

7. Timber Physics. A study of the structure, distributive characteristics, and technical properties of our common woods, and of the relationship of their properties to the principal uses of timber. Lectures and laboratory work. *Three hours.* Mr. C. A. Davis.
8. Seminary. Professor Roth.

SECOND SEMESTER

2*b*. Silviculture. Methods of artificial and natural reproduction, seedbed and nursery work, planting and sowing in forests, reforestation of denuded lands, treatment of prairies, dunes, etc. Lectures and field work. *Three hours.* Mr. C. A. Davis.

4. Forest Utilization. Uses of timber; points of production and market; methods of lumbering, milling, and marketing; minor forest industries. Lectures. *Four hours.* Professor Roth.

5*b*. Forest Management. Continuation of Course 5. *Five hours.* Professor Roth.

6. Dendrology. Monographic study of forest trees, their life history, distribution, requirements, behavior and possibilities in the forest. Lectures, laboratory and field work. *Three hours.* Mr. C. A. Davis.

8*a*. Seminary. Continuation of Course 8. Professor Roth.

PHYSIOLOGY

Work in physiology may advantageously be preceded by the following courses, or their equivalent: Course 1, Elements of Animal Biology; Course 5 in Animal Anatomy, or a course in descriptive and practical human anatomy, and lectures and laboratory work in Vertebrate Histology in the Medical Department; Courses 1 and 2 in Physics; Courses 1, 2, and 4 in General Chemistry; and Course 10 in Organic Chemistry.

FIRST SEMESTER

1. Lectures and Recitations. *Five hours.* Professor Lombard.
2. Continuation of Course 1. *Three hours.* Professor Lombard.
3. Laboratory Work. *Three hours.* Professor Lombard.
4. Physiological Experimentation. Teachers' course. *One hour.* Professor Lombard.
5. Physiological Experimentation. Research work. *Two hours.* Professor Lombard.

Course 5 is open only to those who have taken Course 3.

PHARMACOLOGY

SECOND SEMESTER

1. Experimental Pharmacology. Laboratory work. Investigation of the effects of chemical agents (drugs and poisons) on living animals and tissue; examination of the symptoms induced and their explanation on the basis of physiology and chemistry. *Three hours.* Professor Cushny.

ANATOMY

FIRST SEMESTER

1. Osteology. Lectures and demonstrations. *Two hours.* Dr. YUTZY.

2. General Anatomy. Lectures. *Two hours.* Professor MCMURRICH.

4. Anatomy of Nervous System. Lectures. *Two hours.* Professor MCMURRICH.

Course 4 should be preceded by Courses 2 and 3.

7. Histology and Histogenesis. Lectures and demonstrations. *Two hours.* Professor HUBER.

SECOND SEMESTER

1*a*. Anatomy of the Joints and Ligaments. *Two hours.* Professor MCMURRICH.

3. General Anatomy. Continuation of Course 2. Lectures. *Two hours.* Professor MCMURRICH.

8. Histology and Histogenesis. Lectures and demonstrations. *Two hours.* Professor HUBER.

EITHER FIRST OR SECOND SEMESTER.

5. Practical Anatomy. Laboratory work. *Three hours.* Professor MCMURRICH, Dr. YUTZY, Dr. A. H. H. ROTH, and assistants.

6. Practical Anatomy. Laboratory work. *Three hours.* Professor MCMURRICH, Dr. YUTZY, Dr. A. H. H. ROTH, and assistants.

Courses 5 and 6 are both required in order to complete the laboratory work in human anatomy.

7*a*. Histology. Laboratory Course. *Three hours.* Professor HUBER.

Course 7*a* must be preceded by Course 1 in General Biology.

9. Methods of Vertebrate Histology. Laboratory work and reading. *Two hours.* Professor HUBER and Dr. DE WITT.

Course 9 must be preceded by Course 7*a*.

10. Research in Vertebrate Histology. This course may be elected as 10*a, three hours;* 10*b, five hours.* Professor HUBER.

Course 10 must be preceded by Course 1 in General Biology and Courses 7, 7*a,* 8, and 9 in Vertebrate Histology.

11. Microscopic Anatomy of the Central and Peripheral Nervous System and Special Sense Organs. Laboratory work and reading. *Three* or *five hours.* Professors MCMURRICH and HUBER.

12. Research Work in Anatomy. *Hours arranged.*

Courses 11 and 12 should be preceded by Course 1 in General Biology, Courses 4, 7, 7*a*, 8, and 9 in Anatomy.

DRAWING

FIRST SEMESTER

1. Geometrical Drawing. Eight sections. *Four hours.* Assistant Professor GOULDING, Mr. WILSON, Mr. BARTLETT, Mr. STROEBE, and Mr. MURPHEY.

4. Free-Hand Drawing. Pencil, pen and ink sketches. Three sections. *Three hours.* Professor C. S. DENISON, Miss HUNT, and Mr. MURPHEY.

10. Continuation of Course 8. *Two hours.* Professor C. S. DENISON and Miss HUNT.

Course 10 must be preceded by Courses 4, 7, and 8.

13. Water-Color Drawing. *Three hours.* Professor C. S. DENISON and Miss HUNT.

Course 13 must be preceded by Course 8.

SECOND SEMESTER

1. Geometrical Drawing. Six sections. *Four hours.* Mr. WILSON, Mr. BARTLETT, Mr. STROEBE, and Mr. MURPHEY.

4. Free-Hand Drawing. Six sections. *Three hours.* Professor C. S. DENISON, Miss HUNT, Mr. BARTLETT, Mr. STROEBE, and Mr. MURPHEY.

5. Descriptive Geometry. Recitations and Drawing. Four sections. *Four hours.* Professor C. S. DENISON, Assistant Professor GOULDING, and Mr. WILSON.

Course 5 must be preceded by Course 1.

6. Shades, Shadows, and Perspective. *Three hours.* Professor C. S. DENISON.

Course 6 must be preceded by Course 5.

7. Free-Hand Drawing (Advanced). *Three hours.* Miss HUNT.

Course 7 must be preceded by Course 4.

8. Architectural and Water-Color Drawing. Two sections. *Two hours.* Miss HUNT.

Course 8 must be preceded by Course 1 or 4.

14. Stereotomy. *Two hours.* Professor C. S. DENISON and Mr. WILSON.

Course 14 must be preceded by Course 5.

16. Free-Hand Lettering. *Two hours.* Assistant Professor GOULDING.

Course 16 must be preceded by Course 1.

17. Spherical Projections. *One hour, to be arranged.* Professor C. S. DENISON.

Course 17 must be preceded by Course 5.

SURVEYING AND ENGINEERING

The courses in Surveying, Civil Engineering, Mechanical Engineering, Electrical Engineering, Chemical Engineering, Marine Engineering, and Naval Architecture are arranged primarily for students in the Department of Engineering, and are described in the chapter on that department, but they are open on certain conditions to students of the Department of Literature, Science, and the Arts.

PHYSICAL TRAINING

Work in the gymnasium, twice a week, is required of first year students. The work begins on the first Monday in November, but students are expected to report to the Director of the gymnasium between October 1 and October 25 for physical examination and assignment to sections. No credit toward graduation is given for this work.

COMBINED LITERARY AND MEDICAL COURSE

A candidate for a degree in the Department of Literature, Science, and the Arts, who has at least sixty hours to his credit, including the prescribed Rhetoric, and who has completed all the requirements for admission without condition to the Department of Medicine and Surgery may register in that department while continuing his registration in the Literary Department. Inasmuch as nearly all the subjects comprised in the first two years in the medical course are also open, on certain conditions, to students in the Literary Department, a person registered in both departments may so arrange his work as to secure the bachelor's degree in four years after admission to the Literary Department, and the degree in medicine four years from the date of registration in the Medical Department.

A student who wishes to avail himself of the opportunity here offered must first secure permission from the Dean of the department.

COMBINED LITERARY AND LAW COURSE

A candidate for a degree in the Department of Literature, Science, and the Arts, while continuing his registration in this department, may also register in the Department of Law on the following conditions: (1) He must have been a student in the Department of Literature, Science, and the Arts for at least one semester; (2) he must have at least ninety hours to his credit, including the prescribed Rhetoric; and (3) the work he has already completed in the Department of Literature, Science, and the Arts must include a sufficient number of the courses enumerated below to enable him to complete within a year the specific requirement described in the following paragraph.

When a student so registered in the two departments has completed in the Department of Law the courses in Contracts, Torts, Personal Property, Elementary Real Property, and Agency, and has also done sufficient work in the Literary Department to bring his credits up to one hundred and five hours, he will be recommended for the degree of Bachelor of Arts, provided his work in the Literary

Department has included: (1) History, Course 19, and (2) at least twenty-four hours selected from the following: History, Courses 3, 4, 11, 12, 14, 15, 22, 27, 28, and 31; Political Economy, Courses 3, 4, 5, 9, 19, and 22; Philosophy, Courses 1, 7, 9, and 14; International Law, Course 1; Latin, Course 8; and provided, further, that the courses selected include at least two of the four following courses: History 27; Philosophy 14; International Law 1; Latin 8. By availing himself of the privilege here offered a student may shorten by a year the time necessary for earning the two degrees, the bachelor's degree in arts and the bachelor's degree in law.

Application to enter upon the combined Literary and Law Course must be made during the first week of the semester by filling out and handing to the Dean a special election blank.

COURSE IN HIGHER COMMERCIAL EDUCATION*

The course in Commerce is organized as a special course in the Department of Literature, Science, and the Arts. Its aim is to give special training in the organization and processes of modern industry and to assist the student in the selection of such general courses, offered in the department, as will best supplement this training in preparation for a business life.

The course is administered by a committee of the Faculty. All students contemplating enrollment in the course should consult with the committee, in making elections, from the beginning of their University work.

In the case of candidates for a degree enrollment takes place at the beginning of the third year of residence in the University, and may be continued either for two years, leading to the bachelor's degree, or for three years, leading to the master's degree. During the first and second years of University residence it is essential that the student accomplish certain preliminary work, including History, Courses 11 and 12, Political Economy, Courses 2, 3, 29, and 30, and two years of French or German. Special students are permitted to enter the technical courses in the second year of residence.

Undergraduates enrolled in the course are expected to elect 10 hours per semester and graduate students 13 hours per semester from the special or technical courses in Commerce and Industry. At present 36 of these courses are offered, aggregating 81 hours. They include the following groups: Economics and Industrial History, Courses 2, 3, 5, 5*a*, and 22; Money, Banking, and Finance, 4, 9, and 9*a*; Industrial Technique, 29, 30, 31, and 32; Commerce and Transportation, 6, 33*a*, 33*b*, 33*c*, and 33*d*; Legal Studies, 41 and 42;

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*A special announcement of the course may be obtained by addressing Secretary James H. Wade. Correspondence may be directed to Professor Edward D. Jones, secretary of the committee.

Applied Science, Physics, 39, Botany, 4, Geology, 10, Forestry, 1 and 4; Insurance and Statistics, 51, 52, 53, and 54; Accounting and Business Organization, 6*a*, 35, 36, 37, and 38; Seminary in Commerce.

The privileges of the combined Literary and Law Course (see page 124) are open to candidates for the bachelor's degree in the course in Commerce having 90 hours credit.

Graduates are entitled to receive, in addition to their diploma, a certificate signed by the President stating the special or professional courses completed in the course in Commerce.

TEACHER'S DIPLOMA AND TEACHER'S CERTIFICATE

The aims of the University in providing instruction in the Science and the Art of Teaching, are as follows:

1. To fit the University students for the higher positions in the public school service.
2. To promote the study of educational science.
3. To teach the history of education, and of educational systems and doctrines.
4. To secure to teaching the rights, prerogatives, and advantages of a profession.
5. To give a more perfect unity to our State educational system by bringing the secondary schools into closer relations with the University.

TEACHER'S DIPLOMA

The Teacher's Diploma is given to a student in connection with his bachelor's degree, provided he has complied with the following conditions:

(1) He must have taken Courses 1 and 2, and additional work amounting to four hours in the Science and the Art of Teaching (see page 96).

(2) He must have taken such teacher's course or courses as may be prescribed in some other department of instruction.

(3) He must, in the judgment of his instructors, not only have an adequate knowledge of the subjects studied, but also possess other qualifications essential to success in teaching; it being distinctly understood that work acceptable as a part of the requirements for graduation may not justify the granting of a teacher's diploma.

The Diploma is also given to a graduate student at the time of receiving a master's or a doctor's degree, provided he has pursued teaching as a major or a minor study, or has otherwise satisfactorily completed an equivalent amount of pedagogical work, and has also fulfilled the requirements (2 and 3) above.

TEACHER'S CERTIFICATE

By authority of an act of the State Legislature, passed in 1891, the Faculty of this Department gives a Teacher's Certificate to any person who takes a bachelor's, master's, or doctor's degree, and also receives a Teacher's Diploma as provided above. By the terms of the act, the certificate given by the Faculty "shall serve as a legal certificate or qualification to teach in any of the schools of this State, when a copy thereof shall have been filed or recorded in the office of the legal examining officer or officers of the county, township, city, or district."

TEACHER'S APPOINTMENT COMMITTEE

An appointment committee of the Faculty of the Department of Literature, Science, and the Arts, composed of representatives of the various departments of instruction, has been constituted for the purpose of assisting men and women who are studying, or have studied, under this Faculty, to secure positions as teachers. This service is performed gratuitously, in the interest of students of the University, past or present, and of superintendents of schools and boards of education wishing to employ teachers. Persons desiring to reach this committee should address their communications to the "Secretary of the Appointment Committee, University of Michigan."

FELLOWSHIPS, SCHOLARSHIPS, LOAN FUNDS, AND PRIZES*

Buhl Classical Fellowship.—Mr. Theodore D. Buhl, of Detroit, has generously continued the provision for a Classical Fellowship for the year 1904-1905 with an income of five hundred dollars. For the current year the income is divided between Robert Byrns English, A.M., and Loura Bayne Woodruff, A.M.

Newberry Classical Fellowship.—Mrs. Helen H. Newberry, of Detroit, has given the sum of three hundred dollars for the maintenance of a Fellowship in the Classics during the year 1904-1905. The holder of the Fellowship is Elizabeth Ethel Sinclair, A.B.

A Classical Fellowship with an income of five hundred dollars has been provided for the year 1904-1905 by a Friend of the University. The income has been divided between Henry Herbert Armstrong, A.M., and John G. Winter, A.M.

Peter White Fellowship in American History.—The Fellowship in American History provided by the Honorable Peter White, of Marquette, has been continued for the year 1904-1905. The income is four hundred dollars. The present holder of the fellowship is John Leonard Conger, A.B.

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*The most of the funds here mentioned are restricted in use to the Department of Literature, Science, and the Arts, though some of them are also available in other departments of the University.

Dexter M. Ferry Botanical Fellowship.—The Fellowship in Botany provided by Mr. Dexter M. Ferry, of Detroit, has been continued for the year 1904-1905. The income is five hundred dollars. The present holder of the fellowship is Rufus Percival Hibbard, A.B.

Angeline Bradford Whittier Fellowship in Botany.—This Fellowship has been established in memory of his mother by Joseph Bradford Whittier, of Saginaw. The principal sum of the endowment is four thousand dollars. The holder of the fellowship for the year 1904-1905 is Alfred Dachnowski, A.M.

Fellowship in Chemistry.—The sum of five hundred dollars has been given by Messrs. Parke, Davis & Company, of Detroit, for the continuation in the year 1904-1905 of the Fellowship in Chemistry established by them in 1895. Professors VAUGHAN, PRESCOTT, and BIGELOW are a committee to select the incumbent and to arrange the work in accordance with the wishes of the donors. The holder of the Fellowship for the current year is William Henry Lightstone, Jr., A.B.

Rockefeller Fellowship in Bacteriology.—The Rockefeller Institute for Medical Research has continued its grant for a Fellowship in Bacteriology for the year 1904-1905. In the year 1903-1904 research on the subject of Trypanosomes was carried on by Ward J. MacNeal, A.B. The present holder of the fellowship, Henry Morton Torrey, B.S., is engaged in research upon the same subject.

Charles James Hunt Fellowships.—In July, 1900, Mr. Charles James Hunt, of Detroit, a graduate of the University in the Class of 1846, and wife, conveyed by deed, to the Board of Regents, in trust, the title to certain pieces of real estate, subject to Mr. Hunt's life-interest in the income to be derived therefrom, and to the life-interests of other persons named in the deed. After the terminations of these life-interests "one or more fellowships in the University of Michigan" are to be established in accordance with conditions named in the deed of trust and in accompanying documents, and are to be known as the Charles James Hunt Fellowships.

Phillips Scholarships.—The late Henry Phillips, Jr., of Philadelphia, Pa., made provision in his will for the establishment and maintenance of six scholarships, to be known as the Phillips Scholarships, in the Department of Literature, Science, and the Arts of the University of Michigan. By the terms of the will these scholarships are to be given only to candidates for the degree of Bachelor of Arts, who excel in the Greek and Latin studies required for admission to the University; and they are to be awarded by a committee consisting of the President of the University, the Dean of the department, the senior professor of Greek, and the senior professor of Latin.

Of the six scholarships contemplated in the bequest three have been established, with an income of fifty dollars each. They are awarded to students, otherwise properly qualified, who by special examination show that they excel in the requirements for admission in Greek and Latin. The examination covers the ground included in two units of Greek and four units of Latin (see page 52). In 1904 scholarships were awarded to Ralph Waldo Oakley, Jr., Jay Theodore Reed, and Isabella Rightmyer Watt.

In 1905 the examination will be held on Saturday, October 14, and will be open only to students already admitted to the freshman class. Application for admission to this examination must be made to the Dean of the department on or before October 7, 1905.

Elizabeth A. Rathbone Scholarship.—The Michigan Chapter of the Society of Colonial Dames of America has established a Scholarship in American History with an income of one hundred fifty dollars. The scholarship is awarded by a committee composed of the President of the University, the professor of American History, and a committee representing the society. The present holder of the scholarship is Bess May Vrooman, A.B.

Lucinda Hinsdale Stone Memorial Scholarship.—The Michigan State Federation of Women's Clubs has presented to the University the sum of three thousand dollars, as a portion of a fund to be known as The Lucinda Hinsdale Stone Supplementary Loan Scholarship Fund, the income of which is to be administered by the President of the University, the Women's Dean, and a third person of their appointment (who shall be a woman), for the benefit of women who are students in the University. None of the income is available for the year 1904-1905.

Detroit High School Scholarships.—The alumni of the Detroit High School have established several scholarships open to graduates of that school. The first steps toward raising a fund for this purpose were taken in 1891; and a corporation has since been formed under the title of the Detroit High School Scholarship Fund Association.† From four to six students at a time usually enjoy the benefit of the fund. Several of the beneficiaries have received degrees at the University. One of the scholarships is known as the Mary C. Leete Memorial Scholarship, in memory of a teacher who died in 1894.

Saginaw High School Scholarships.—Four scholarships, with an annual income of two hundred and fifty dollars each, established by the Honorable Arthur Hill, of Saginaw, W. S., and known as the

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†The State Legislature in 1893 passed an act providing "that five or more persons of full age, residing in the State of Michigan, may associate and incorporate themselves together for the purpose of establishing scholarships in the University of Michigan, for the benefit of graduates of the high schools of the State." A corporation organized in accordance with the provisions of this act "shall be under the general management of not less than five, nor more than fifteen trustees," and "shall, in law and equity, be capable of taking and receiving real and personal estate . . . . not exceeding one hundred thousand dollars in the aggregate, for the purpose of its incorporation."

John Moore, the Wells-Stone, the Alonzo R. Bingham, and the Otto Roeser scholarships, are open to graduates of the Saginaw, W. S., High School.

The Saginaw, E. S., High School offers several scholarships of varying amounts to deserving graduates of that school. One of these is known as the Heavenrich Brothers & Co.'s scholarship, and is provided by the mercantile firm of that name. Another, designated as the High School Scholarship, is cared for largely by the High School Lyceum. A third is known as the A. R. Loveland Scholarship. The graduating class of 1900 also made provision for a scholarship to be available every sixth year. These scholarships are all administered as loan funds.

Grand Rapids High School Scholarships.—The High School Scholarship Association of Grand Rapids is a body incorporated under the State law, for the purpose of assisting graduates of the Grand Rapids High School to secure a college education in the Department of Literature, Science, and the Arts, or the Department of Engineering, of the University of Michigan.

Perry Scholarship Fund.—The Alumni Association of the Ann Arbor High School, in 1898, established a fund, in memory of Walter Scott Perry, graduate of the University in the class of 1861, and for twenty-seven years Superintendent of the Ann Arbor Schools.

The purpose of the fund is to assist graduates of the school in procuring an education in the Department of Literature, Science, and the Arts of the University of Michigan. It is administered as a Loan Fund,* repayments to be made by beneficiaries under regulations prescribed by the Board of Directors of the High School Alumni Association.

Seth Harrison Scholarship Fund.—The Seth Harrison Scholarship Fund was established in memory of her father, by Mrs. Clara Harrison Stranahan, of Brooklyn, N. Y. The principal of the fund was originally twenty-five thousand dollars, but this has been increased by additions from unexpended income. The income is to be used, on conditions specified in the covenant between Mrs. Stranahan and the Board of Regents, for the benefit of descendants of Seth Harrison who may be pursuing studies in the Department of Literature, Science, and the Arts of the University of Michigan, whenever applicants properly qualified present themselves. Provision is made, however, for applying the income of the fund to scholarships for other persons, "if at any time there shall be a period of seven years during which there are no qualified applicants," descendants of Seth Harrison.

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*In 1899 an act was passed by the State Legislature containing the following provisions: "Any five or more persons of full age residing in the State of Michigan may associate and incorporate themselves together for the purpose of establishing loan funds for the benefit of school scholars and students of this State, to assist them to attend the University of Michigan" (and other State educational institutions). "All the funds received by any corporation organized under this act shall be used, after paying necessary expenses, for the exclusive purpose or purposes set forth in the articles of association. . . . Such corporation shall in equity and law be capable of taking and receiving real and personal estate . . . not exceeding twenty-five thousand dollars, in the aggregate, for the purpose of its incorporation."

Margaret Smith Hunt Scholarships, James B. Hunt Scholarship, and Charles James Hunt Scholarship.—In July, 1900, Mrs. Margaret Elsie Hunt, of Detroit, a student in the University in the year 1878-9, conveyed by deed to the Board of Regents, in trust, the title to certain pieces of real estate, subject to Mrs. Hunt's life-interest in the income to be derived therefrom. After the termination of this life-interest, "one or more scholarships in the undergraduate course of studies in the Department of Literature, Science, and the Arts" are to be established in accordance with conditions named in the deed of trust and in accompanying documents, and are to be known as the Margaret Smith Hunt Scholarships.

In February, 1902, Mr. and Mrs. Hunt conveyed by deed to the Board of Regents, in trust, the title to a certain other tract of land, subject to Mrs. Hunt's life-interest in the income to be derived therefrom and to certain other life-interests and conditions named in the deed. After the termination of these life-interests, and in accordance with conditions named in the deed of trust and in accompanying documents, a portion of the income derived from the trust is to be devoted to the maintenance of the James B. Hunt Scholarship, so named in memory of the father of Charles James Hunt; a second portion to the maintenance of a scholarship, to be known as the Charles James Hunt Scholarship; and the remainder to the maintenance of Margaret Smith Hunt Scholarships in addition to those previously provided for.

Scholarship of the Class of 1894.—The Class of 1894 established a fund, the income of which is "to be used as a loan fund for the benefit of needy and worthy undergraduates in the Literary Department," on condition that the Board of Regents "shall require of such student or students as may receive the benefit of such fund a promise to repay to said Board the sum loaned on such terms as shall seem to said Board to be reasonable; it being the intention of the donors of said fund that the same shall be kept intact, as far as possible."

Scholarship of the Class of 1897.—The Class of 1897 has established a fund, a portion of which is available as a loan fund.

Scholarship of the Class of 1898.—The Class of 1898 has established a scholarship fund, the proceeds of which are not yet available.

Scholarship of the Law Class of 1899.—A small sum, contributed by members of theLaw Class of 1899, is available as a loan fund.

Students' Lecture Association Fund.—Under the conditions of the gift made to the Board of Regents by the Students' Lecture Association, a small fund is available for loan to students in any department of the University. All loans are to be made through a committee consisting of the President of the University, the Dean of the Department of Literature, Science, and the Arts, the Dean of the Department of Medicine and Surgery, and the Dean of the Department of Law; and they are to be secured by notes payable one or more years after the borrower has completed his university course.

Newton Van Der Veer Loan Fund.—In January, 1900, the Regents accepted from Mrs. George Wagner a sum of money as the nucleus of a fund to be known, in memory of her father, as the Newton Van Der Veer Loan Fund; and to be used in loans "to needy students in such amounts and under such conditions as the executive head of the University may deem proper and wise."

Good Government Club Prize.—The income of the sum of five hundred dollars, presented to the Board of Regents by the Good Government Club of the University, is available, under the conditions of the gift, as a prize "for the best essay on some theme connected with the subject of good government." The professor of Political Economy, the Dean of the Department of Law, and the professor of History are a committee to choose themes for the essays and to award the prize.

FEES AND EXPENSES

The Matriculation Fee and the Annual Fee must be paid in advance. Except by order of the Board of Regents, no portion of these fees can be refunded to students who leave the University during the academic year. The Auditing Board has authority, under certain conditions, to remit the Special Examination Fee.

Matriculation Fee.—For Michigan students, *ten dollars;* for all others, *twenty-five dollars.*

Annual Fee.—For Michigan students, *thirty dollars;* for all others, *forty dollars.* Students of this department who are pursuing a Combined Course, and, in consequence, are registered at the same time in one of the professional departments, are required to pay the annual fee due from students in such professional department.

Special Examination Fee.—A fee of *five dollars* is required of all persons who present themselves for examination for admission at a date later than that announced in the Calendar (see page 56).

Diploma Fee.—For all alike, *ten dollars.* A fee of *one dollar* is charged for the Teacher's Diploma.

For laboratory fees and other expenses, see pages 47 to 48.

Graduate School

A special Announcement giving additional information in regard to the Graduate School is issued in the spring of each year. Copies of this Announcement can be had by addressing Mr. James H. Wade, Secretary of the University. Inquiries about admission and courses of study, that are not answered in the Announcement, should be addressed to Professor A. H. Lloyd, Secretary of the Administrative Council of the Graduate School.

THE Graduate School is organized within the Department of Literature, Science, and the Arts. Its management is intrusted to an Administrative Council, consisting of the President of the University, the professors and junior professors in the Faculty of the department, and such other persons as may be elected to membership. The purpose of the school is to bring into greater prominence the numerous advanced courses of instruction that have been developed from the continual extension of the elective system; to secure a more efficient and systematic administration of this higher work; and to provide as far as possible for the separate instruction of graduate students.

ADMISSION AND REGISTRATION

All applicants for admission to the Graduate School must first report to the Dean of the Department of Literature, Science, and the Arts, and present their credentials. They will then receive special blanks to be filled out, subject to the approval of the professors under whom they wish to work, and they should consult with these professors at once, in order, if possible, to report to the Secretary of the Administrative Council for registration within one week after the opening of the semester. The office of the Secretary is in University Hall.

The privileges of the school are open to graduates of the Department of Literature, Science, and the Arts of this University, and to graduates of other universities and colleges, who satisfy the Administrative Council that they are qualified to pursue with profit the advanced courses of study offered in the school.

Graduates of universities and colleges where the undergraduate courses of study are not substantially equivalent to the course prescribed at this University may be admitted to the school; but ordinarily, if candidates for a higher degree, they are required to do an additional amount of undergraduate work, or to prolong their term of residence.

Graduates of this University, or of other approved institutions, who do not wish to become candidates for a degree, may be admitted and registered as special resident graduates.

Graduates of other institutions who are candidates for a bachelor's degree in the Department of Literature, Science, and the Arts, are not registered in the Graduate School.

COURSES OF INSTRUCTION

The courses of instruction offered in the Department of Literature, Science, and the Arts, and described on pages 62 to 124, are open to graduate students who satisfy the professors in charge that they are qualified to pursue the work to advantage. In all branches of study special provision is made for the instruction of graduate students.

The work of candidates for a higher degree is not confined strictly to the courses referred to above. Each student chooses three lines of study, a major study and two minor studies, which, after approval by the Council, he pursues under the immediate supervision of a special committee, consisting of the professors in charge of the studies chosen, the professor in charge of the major study being chairman. The nature of the work prescribed, and of the committee's oversight, varies in different cases according to the subjects chosen, the degree sought, and the previous attainment of the student. The work may consist in attendance upon certain specified courses, in reading to be done privately and reported upon, or in an original research to be carried on more or less independently. The essential features are specialization of study, a final examination, and a thesis. A thesis is always required of a candidate for a doctor's degree and of a non-resident candidate for a master's degree; for a master's degree in residence the requirement may be waived at the discretion of the committee in charge of the student's work. The final examination for a degree is conducted under the direction of the committee, and the result of the examination is reported to the Faculty of the Department of Literature, Science, and the Arts.

REQUIREMENTS FOR GRADUATION.

The degrees conferred on the completion of approved courses of study in the Graduate School are Master of Arts, Master of Science, Doctor of Philosophy, and Doctor of Science.

THE MASTERS' DEGREES

The masters' degrees are open to persons holding a bachelor's degree from this University or from any other reputable university or college. The degree of Master of Arts is the one usually conferred, though candidates who pursue studies along scientific lines may, at their option, receive the degree of Master of Science. A residence of at least one year at this University is required, except as stated below.

Residents.—A student who has received a bachelor's degree may be recommended for a master's degree after completing the prescribed term of residence, and passing an examination on the course of study approved by the Administration Council. A thesis may, or may not, be included in the requirements for the degree, as the committee in charge of the student's work may determine.

A student properly qualified may be permitted to pursue at the same time studies for a master's degree and studies in any of the professional schools, on condition that the term of study and residence in the Graduate School be extended to cover at least two years.

Non-Residents.—A person holding a bachelor's degree from this University, who has already completed a portion of the term of residence prescribed for a master's degree, may be allowed to continue his studies for the degree without further residence at the University, on such conditions as the Administrative Council may determine in each case. *The privilege of study in absentia is, however, restricted to graduates of this University.*

THE DOCTORS' DEGREES

1. The doctors' degrees are open to all persons who have received a bachelor's degree; but no student will be accepted as a candidate for a doctor's degree who has not a knowledge of French and Ger-

man sufficient for purposes of research. The degree of Doctor of Philosophy is the one usually conferred, though candidates who pursue studies along scientific lines may, at their option, receive the degree of Doctor of Science.

2. It is not intended that the doctor's degree shall be won merely by faithful and industrious work for a prescribed time in some assigned course of study, and no definite term of required residence can be specified. As a rule, three years of graduate study will be necessary, the last two semesters of which must be spent at this University. The period of three years, however, may be shortened in the case of students who, as undergraduates, have pursued special studies in the direction of their proposed graduate work.

3. No student will be enrolled as a candidate for a doctor's degree until he has been in residence as a graduate student for at least one year. [This rule may be waived in the case of those who come properly accredited from the graduate school of some other university, and of those who, as undergraduates in this University, have shown special proficiency in the line of their proposed graduate work.]

4. A student wishing to become a candidate for a doctor's degree must make a formal application to be so enrolled at least two semesters prior to the time of presenting himself for examination.

5. A candidate for a doctor's degree must take a major study that is substantially coextensive with some one department of instruction in the University. He must also take two minor studies, one of which may be in the same department as the major, but involving a more thorough treatment of the same. Both minors must be cognate to the major, and the choice of studies is invariably subject to the approval of the Administrative Council.

6. THE THESIS.—The thesis is of great importance. It must exhibit creditable literary workmanship and a good command of the resources of expression; but it must depend for acceptance more upon its subject-matter than upon its formal or rhetorical qualities. It must be an original contribution to scholarship or scientific knowledge. The inquiry should be confined within narrow bounds. The treatment should be as concise as the nature of the matter permits, and show familiarity with the history of the problem treated, with the literature bearing upon it, and with the latest methods of research applicable to it. Every thesis should contain a clear introductory statement of what it is proposed to establish or to investigate, and likewise a final résumé of results. It should also be accompanied by an index of contents and a bibliography of the subject. It is expected that the preparation of an acceptable thesis will usually require the greater part of one academic year.

SPECIAL REGULATIONS RELATING TO THE HIGHER DEGREES

1. Applicants for an advanced degree are required to announce to the Council through the Secretary, as early as the tenth of October of each year, the particular branches of study to which they wish to give special attention. The supervision of their work will then be intrusted to the proper committee.

2. The subject of the thesis for a doctor's degree must be chosen, and must be approved by the committee concerned, as early as the first of November of the college year in which the applicant expects to take the degree; and the subject of the thesis for a master's degree, when required, must be chosen and approved as early as the first of December.

3. The thesis must be completed and put into the hands of the chairman of the proper committee as early as the first of May of the year in which the applicant expects to take the degree.

4. The thesis must be prepared for close scrutiny with reference not only to its technical merits, but also to its merits as a specimen of literary workmanship. It must be preceded by an analytical table of contents and a carefully prepared account of the authorities used.

5. The thesis must be read and defended in public at such time as the Council may appoint, and, in case of a master's degree, a bound copy, either written or printed, must be deposited in the University Library.

6. Every candidate for the degree of Doctor of Philosophy or Doctor of Science, in case of the acceptance of his thesis, is required to have the thesis printed in full or in part as may be approved by the responsible committee. He is also required to deposit one hundred and fifty copies of the printed thesis in the University Library, these copies to be used for exchange with other universities; provided, however, that in cases where this requirement would work hardship, it may be waived on recommendation of the candidate's committee. To guarantee the printing of the thesis, every candidate for the doctor's degree is required to deposit with the Treasurer of the University, between the date of acceptance of his thesis and the time fixed for his examination, the sum of fifty dollars, which deposit will be returned to him in case of failure to pass his examination, or whenever he shall cause his thesis to be printed at his own expense, or shall have it published in a form and under auspices approved by the responsible committee. In case the thesis is not immediately printed, a typewritten copy must be placed in the University Library.

In the printing of the thesis at his own expense, the candidate will be expected to use good substantial paper and sightly topography. A page four inches by six, with outside margins of at least one inch, is recommended.

FEES AND EXPENSES

The Matriculation Fee and the annual Fee must be paid in advance. Except by order of the Board of Regents, no portion of these fees can be refunded to students who leave the University during the academic year.

Matriculation Fee.—For Michigan students, *ten dollars;* for all others, *twenty-five dollars.*

Annual Fee.—For Michigan students, *thirty dollars;* for all others, *forty dollars.* The annual fee required of all graduates who are granted the privilege of pursuing studies for a master's degree *in absentia,* is *ten dollars.*

Diploma Fee.—For all alike, *ten dollars.* A fee of *one dollar* is charged for the Teacher's Diploma.

For laboratory fees and other expenses, see pages 47 to 48.

Department of Engineering

A special Announcement giving further information in regard to this department is published annually. For copies of this Announcement or for other information relating to the department, address Professor Mortimer E. Cooley, Dean of the Department of Engineering, Ann Arbor, Mich.

IN the legislative act under which the University was organized in 1837, provision was made for instruction in engineering. Work was begun in this line in 1853, and the first degrees were conferred in 1860. The engineering courses were included in the curriculum of the Department of Literature, Science, and the Arts, until the close of the collegiate year, 1894-1895. At that time the Department of Engineering was established by the Board of Regents as a separate department of the University.

Persons who wish to become professional engineers are offered thorough courses in civil, mechanical, electrical, chemical, and marine engineering, and in naval architecture. The work extends through four years. The aim of the department is to lay a foundation of sound theory, sufficiently broad and deep to enable its graduates to enter understandingly on the further investigation of the several specialties of the engineering profession; and at the same time to impart such a knowledge of the usual professional practice as shall make its students useful in any position to which they may be called. The technical branches are under the direct care of those who have had professional experience as well as a full scientific training.

The academic year extends from the Tuesday preceding the last Wednesday in September to the Thursday preceding the last Wednesday in June (September 26, 1905, to June 21, 1906). Between the student's third and fourth year of residence, attendance at a summer session of six weeks, beginning the Monday after Commencement (June 26 to August 4, 1905), is also required.

REQUIREMENTS FOR ADMISSION

[For admission to advanced standing, see page 142.]

[For admission of students not candidates for a degree, see page 146.]

Applicants for admission must be at least sixteen years of age, and must present satisfactory evidence of good moral character. They must bring credentials from their last instructor, or from the last institution with which they have been connected.

Unless admitted on diploma from an approved school (see page 145), any student who desires to become a candidate for a degree must pass examinations in the subjects described below. Before entering upon the examination each applicant must present his credentials to the Associate Dean of the department at his office in the old engineering building. Certificates and diplomas from schools other than those officially approved by the University do not excuse an applicant from the admission examinations.

Students who have satisfied the requirements for admission to the Department of Literature, Science, and the Arts (see pages 49 to 56) are admitted upon completing the requirements in plane trigonometry and in the sciences, if deficiencies in these subjects exist.

ADMISSION OF CANDIDATES FOR A DEGREE

The subjects on which applicants for admission to any of the courses leading to a degree in engineering are examined are as follows:

English Language.—The requirement in English language is identical with the requirement in English composition and literature, *three units,* for admission to the Department of Literature, Science, and the Arts. For details concerning the scope of this requirement, for suggestions regarding preparation, and for lists of books from which subjects for composition will be chosen, see pages 50 to 52.

English Literature.—Daily recitation for at least one year will be requisite. Any of the current manuals of English literature will be accepted for an outline of the subject. As much time as practicable should be given to the careful reading of representative authors in each period.

French, German, or Latin.—Applicants may offer French, German, or Latin, one of these three languages being required. It is expected that at least two years will be given to preparation in the language offered. The requirements in each are as follows:

FRENCH.—The whole subject of French grammar. The applicant will be expected to read at sight easy French, and to translate correctly into French simple English sentences. The first year of preparation ought to be spent on the grammar and easy reading; and the second devoted to reading good modern French, accompanied by gramatical analysis and exercises in writing. The texts read should be chiefly narrative and conversational prose; modern, rather than classic, dramas should be read.

GERMAN.—The applicant should be able to pronounce German correctly and to take part with reasonable correctness and facility in a simple conversation upon some topic drawn from his preparatory work. He should also be thoroughly familiar with the everyday facts of the grammar; and he should be able to put illustrative English phrases into German, and to translate at sight a passage of fairly easy prose.

LATIN.—Jones's *First Latin Book,* or an equivalent amount in any other introductory text-book, four books of Caesar's *Gallic War,* and one of the orations of Cicero.

Advanced credit may be secured for one or for two years of German or French study in excess of the two years required for admission; or, if Latin and German or Latin and French are offered, advanced credit is given for the modern language, one year's study being deemed equivalent to Course 1, and a second year's study to Course 2 (see pages 163-164).

Mathematics.*—ALGEBRA.—Fundamental rules, fractions, simple equations, involution and evolution, the theory of indices, and quadratic equations, as given in Beman and Smith's *Elements of Algebra,* or an equivalent in other authors.

GEOMETRY.—Plane, solid, and spherical geometry as given in Beman and Smith's *New Plane and Solid Geometry,* or an equivalent in other authors.

TRIGONOMETRY.—Plane trigonometry as given in Murray's or in Wentworth's *Trigonometry,* or an equivalent in other authors.

N. B.—It is very desirable that high schools whose graduates are received on diploma arrange their courses so as to include a portion of both algebra and geometry in their last preparatory year. Students who do not come from diploma schools should take a similar review if they expect to succeed in the study of mathematics in the University.

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*Students entering at the beginning of the second semester (February 12, 1906) should be prepared in the mathematics of the first semester in addition to the other requirements for admission.

Physics.—An amount represented by Carhart and Chute's *High School Physics.* The instruction in the classroom should be supplemented by work in the physical laboratory to the extent of at least one period a week throughout the school year.

Chemistry.—The requirement is intended to cover one year's work. As a text-book, Freer's *Elementary Chemistry,* or an equivalent amount of work in Remsen's *Introduction to the Study of Chemistry,* is recommended. In either case study of the text should be accompanied by laboratory work.

History.—A year's work in general history as presented in such a work as Myers's *General History* (or a year's work in mediæval and modern history), and a year's work in United States history and government, two years in all.

Botany, Physical Geography, or Astronomy.—The applicant may offer any *one* of these subjects. The requirements, intended to cover a half-year's work in each subject, are as follows:

BOTANY.—Laboratory work for half a year with occasional recitations and review exercises. The method followed in Spalding's *Introduction to Botany,* or other modern text-book of similar plan and scope, may serve to indicate the kind of work desired.

PHYSICAL GEOGRAPHY.—Dryer's *Lessons in Physical Geography,* Davis's *Physical Geography,* or Tarr's *New Physical Geography* is recommended as a text-book.

ASTRONOMY.—Newcomb and Holden's Astronomy, *Briefer Course,* Young's *Elements of Astronomy,* or an equivalent. A knowledge of the principal constellations is required.

ADMISSION TO ADVANCED STANDING

1. Graduates of the Department of Literature, Science, and the Arts of this University, or of any other reputable college, are admitted without examination to advanced standing as candidates for a degree in engineering, and are excused from a considerable portion of the general requirements for graduation (see page 180).* The remaining requirements can be completed in two years, if, as an undergraduate, the student has taken the Mathematics prescribed for engineering students (see page 165) and Courses 1, 4, and 5 in Drawing (see page 171). A knowledge of differential and integral calculus, analytical mechanics, elementary drawing, and descriptive geometry is required for the advanced work.

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*A student enrolled in the Department of Literature, Science, and the Arts, who desires to elect any of the work in the Department of Engineering not included in the Announcement of the former department, must obtain written permission from the Dean of that department, and have it approved by the Dean of the Department of Engineering.

2. Students who have completed at least one year's work in an approved college, and who bring explicit and official certificates describing their course of study and scholarship, and testifying to their good character, are admitted to advanced standing without examination, except such as may be necessary to determine what credit they are to receive for work done in the college from which they have come.

3. Students who have not completed a year's college work in an approved college, but before entering this department of the University have pursued studies beyond those required for admission, may be admitted to advanced standing on passing the regular entrance examinations, and examinations in such undergraduate studies as they may ask to be credited with in advance.

Students entering at the beginning of the second semester (February 12, 1906), and expecting to join the first year's class, should be prepared in the mathematics of the first semester, in addition to the other requirements for admission.

Work in manual training and drawing, pursued in a high school, is recognized for advanced credit if considered by the instructors in the Department of Engineering equivalent to the work given in this department.

4. Rules Relating to Admission to Advanced Standing.

a. Any student, whether a candidate for a degree or not, who applies for advanced standing on the conditions stated in paragraphs 2 and 3 above, must present to the Associate Dean a statement showing the amount of work done in the subjects in which credit is asked. The applicant will then be given a blank form for presentation to the professors in charge of the several subjects named.

b. The application for advanced standing should be made when the student enters the department. Credits must be secured before the first of November, or (if the student be matriculated at the beginning of the second semester) before the fifteenth of March. No credit will be given for advanced standing after these dates.

c. An account once closed cannot be reopened without special permission of the Faculty.

TIME OF EXAMINATION

Examinations for admission to the Department of Engineering will be held on Wednesday, Thursday, Friday, and Saturday, September, 20, 21, 22, and 23, 1905; and on Friday and Saturday, February 9 and 10, 1906. Applicants presenting themselves too late for the scheduled examination are required to pay an examination fee of *five dollars.*

Applicants should present their credentials to the Associate Dean of the department at least as early as the day preceding the beginning of the examination (Tuesday, September 19, 1905, and Thursday, February 8, 1906).

The examinations in the several subjects will be in writing, and will be held in Tappan Hall in accordance with the schedule given below:

SCHEDULE OF EXAMINATIONS FOR ADMISSION SEPTEMBER, 1905

	Wednesday, Sept. 20	Thursday, Sept. 21	Friday, Sept. 22.	Saturday, Sept. 23	
Botany	10 A. M.	......	......	......	Room 8
History	2 P. M.	......	......	......	Room 8
Geometry	......	8 A. M.	......	......	Room 8
French	......	10 A. M.	......	......	Room 12
Latin	......	2 P. M.	2 P. M.	......	Room 8
German	......	2 P. M.	2 P. M.	......	Room 12
Chemistry	......	4 P. M.	......	......	Room 8
Algebra	......	......	8 A. M.	......	Room 8
Physics	......	......	......	8 A. M.	Room 8
English Composition and Literature	......	......	......	10 A. M.	Room 8
Physical Geography	......	......	......	2 P. M.	Room 8
Astronomy	......	......	......	2 P. M.	Room 12
Trigonometry	......	......	......	4 P. M.	Room 8

SCHEDULE OF EXAMINATIONS FOR ADMISSION FEBRUARY, 1906

	Friday, Feb. 9.	Saturday, Feb. 10.	
Algebra	8 A. M.	......	Room 8
Geometry	8 A. M.	......	Room 8
Trigonometry	8 A. M.	......	Room 8
Physical Geography and Astronomy	11 A. M.	......	Room 8
German	2 P. M.	......	Room 8
Botany	3 P. M.	......	Room 8
History	4 P. M.	......	Room 8
Physics	......	8 A. M.	Room 8
English Composition and Literature.	......	10 A. M.	Room 8
Latin	......	2 P. M.	Room 8
French	......	3 P. M.	Room 12
Chemistry	......	4 P. M.	Room 8

CONDITIONAL ADMISSION

An applicant who fails in some part of the examination may, at the discretion of the Faculty, be admitted conditionally; but any condition thus incurred must be removed at one of the next two regular examinations for admission, and no student who has an admission condition outstanding at the beginning of his second year of residence is allowed to enter his classes until such condition is removed.

ADMISSION ON DIPLOMA

[For further information relating to the rules governing admission on diploma, see page 57.]

Students presenting graduation certificates from any of the schools officially approved by the Faculty of the Department of Literature, Science, and the Arts, signed by the superintendent or the principal of the school, are admitted without examination to the Department of Engineering. But if such certificate, though it might admit a student to the Department of Literature, Science, and the Arts, shows any deficiencies in the requirements for admission to the Department of Engineering, such deficiencies must be made up, or substitutions secured at the time of entrance. Extra studies may be credited on advanced standing, if the subjects are taught in either of the two departments.

The certificate must state that the student has sustained his examinations in all the studies prescribed for admission to the Department of Engineering, or has satisfied the requirements for admission to the Department of Literature, Science, and the Arts (see pages 49 to 56), and is recommended for admission to the University. It must be presented to the Associate Dean of the department within a year and three months after graduation from the school, and the student must then begin his work.

Diplomas and sixty-count academic certificates issued by the Regents of the University of the State of New York are accepted by the Department of Engineering in place of examinations in all the subjects required for entrance which are covered by such credentials, provided that not more than fifteen months have elapsed since grad-

uation. A statement from the teacher, giving in detail the work done and the proficiency attained in these subjects, must be submitted by the holder of the credentials.

No other credentials, such as pass-cards and other certificates issued by the Regents, are accepted, unless they are presented by the holder of a Regents' diploma or a sixty-count academic certificate.

ADMISSION OF STUDENTS NOT CANDIDATES FOR A DEGREE

Persons who desire to pursue studies in this department, and do not desire to become candidates for a degree, are admitted on the following conditions:

1. All persons under twenty-one years of age must pass the regular entrance examinations or bring graduation certificates as described on page 145; hence they are, on admission, enrolled as regular students.

2. However, to afford an opportunity for persons of mature age, practicing engineers, teachers, or others, to take up a few subjects offered in the department, and to reside at the University for a limited time, without becoming regular students, it is provided that persons over twenty-one years of age who desire to pursue studies in this department, and do not desire to become candidates for a degree, may be admitted as special students, provided they show that they have a good knowledge of English, and are otherwise prepared to pursue profitably the studies they may desire to take up. Every applicant ought to have the training received in a good high school; and a knowledge of algebra, geometry, physics, and chemistry, equivalent, at least, to that prescribed in the requirements for admission, will be necessary. *Admission examinations in these subjects are required.*

3. Should a student who enters under the preceding provision (2) subsequently become a candidate for graduation, he must pass the regular entrance examination at least one year previous to the time when he purposes to graduate.

4. Students not candidates for a degree who wish credit for studies pursued before admission are referred to the rules relating to advanced standing given above.

5. Students not candidates for a degree are expected to

attend the lectures, recitations, and examinations in the branches prescribed for the regular students, and are required to take enough work to occupy them profitably.

THE WORK OF THE DEPARTMENT

[For enumeration of Courses of Instruction, see page 161.]
[For Sequence of Studies, see page 178.]

The studies pursued in the earlier part of the course are practically the same for all engineering students. They comprise, in *Mathematics,* advanced algebra, analytic geometry, and the elements of differential and integral calculus; in *French, German,* and *Spanish,* the grammar, and reading of narrative prose and current scientific literature; in *English,* work in composition and rhetoric; in *Physics,* mechanics, sound, light, heat, electricity, and magnetism; in *Chemistry,* the principles of inorganic chemistry; in *Drawing,* geometrical and mechanical drawing and descriptive geometry; in *Shop Practice,* carpentry, pattern-making, and forging.

The more technical subjects are taken up in the latter part of the course. The general scope of the course of study is indicated in the following brief descriptive outline. Fuller details are given in the special annual Announcement of the department.

DESCRIPTION OF COURSES

English.—The instruction in English is designed, primarily, to develop in the student correctness, fluency, and constructive power in the expression of his ideas, and to secure proficiency in writing rather than a technical knowledge of rhetoric. Courses in technical journalism and advanced composition, designed to prepare technically trained men for editorial and commercial positions, are also offered.

German, French, and Spanish.—The aim of the instruction in German and French is to help the student to a reading and speaking knowledge of those languages. In the elementary courses the forms and constructions of the languages are taught, and abundant practice in reading and speaking is given. As early as practicable the conversation of the class-room is conducted in the language studied. The advanced work aims especially to impart the facility in reading, particularly of scientific texts and periodicals, which is so helpful to the engineer in the prosecution of his work. Practice is also given in correspondence and in the use of business forms.

The courses in Spanish are almost exclusively conversational, and are offered chiefly to meet the demands of students looking forward to a professional career in countries where Spanish is the prevailing medium of communication. Opportunity for advanced work is also provided.

Mathematics.—The required work (including theoretical mechanics) is the same for all students of engineering, except those in chemical engineering, and extends through the first five semesters. Advanced algebra and plane and solid analytic geometry are followed by the elements of the differential and integral calculus. Finally, analytical mechanics and the calculus, including the elements of differential equations, are carried on in close connection with the study of theoretical mechanics.

Students desiring to pursue their mathematical studies further will find a large list of electives among the courses in pure and applied mathematics offered in the Department of Literature, Science, and the Arts.

Physics.—Instruction in elementary physics is given to all second year students in engineering by means of three lectures a week throughout the year. These lectures are supplemented by recitations twice a week, for which purpose the class is divided into sections of about twenty-five members each. The first semester's work is devoted to the laws and general principles of mechanics, sound, and light; and that of the second, to heat, electricity, and magnetism. All important physical phenomena receive experimental demonstration. The course in general physics is followed by a brief laboratory course, consisting of quantitative experiments designed to illustrate the general laws of physics and to give to the student some practice in the use of standard instruments.

Electrical Measurements.—Students in electrical engineering are required to take two additional courses in physics, a two hour course in primary and secondary batteries and standard cells, and a course in electrical measurements, extending through an entire year and devoted to practical work in the laboratory with the most modern instruments.

Chemistry.—The course in the principles of chemistry, for all students of engineering, consists of lectures, with demonstrations and recitations. It covers briefly the facts regarding the metallic and the non-metallic elements, and some attention is given to recent work in electrochemistry. The course also prepares the student for the later work in metallurgy.

Drawing.—A very complete course in mechanical drawing is given, embracing plane projection drawing, isometric drawing, descriptive geometry, and the elementary principles of lettering, coloring, and shading, with original problems executed in the drawing room. The plans of surveys, plane-table work, maps, designs in engineering construction, and the thesis drawings naturally come under this head. Instruction is also given in free-hand drawing, topographical drawing, ornamentation and lettering, shades and shadows, linear perspective, and drawing for stone cutting. The work in drawing occupies the student a part of almost every day throughout the course.

Mechanical Practice and Shop Work.—The aim of the instruction in this department is to make the student, as far as time will permit, acquainted with the best mechanical practice. The courses all begin with a systematic series of graded exercises, to give the student familiarity with the common tools used in the particular branch of work he is pursuing; and in this connection the theory of the process is taught by lectures and by assigned reading. In the *Carpenter Shop* the student, after making and assembling the parts of some complete piece of carpenter or joiner work, devotes his time to pattern work. In the *Foundry* the student learns to mould in green sand, in dry sand, and in loam, both for brass and for iron castings. Each student is required to take part in all of the work about the cupola and the brass furnaces, and to assume his share in their management during the periods of melting and casting. In the *Blacksmith Shop* the object of the course is to enable the student to acquire a certain degree of skill in practice, together with a knowledge of the principles governing such processes of forging as an engineer is likely to be called upon to direct. In the *Machine Shop* each class undertakes the building of one or more simple machines, or pieces of apparatus; and the work is planned in such a way as to give opportunity for learning general shop manipulation.

Manual Training.—In all these lines of work advanced instruction is given to students who wish to become specially skilled, or who desire to fit themselves for instructors in manual training schools or in shops of similar character.

Surveying.—(*a*) *For Students in Civil Engineering.*—The course covers a full academic year, and includes text-book work, lectures, recitations, and field practice. The class-room instruction embraces, in general, the elements of all the ordinary operations to be expected in the professional practice of a civil engineer, but without including land surveying in the broad sense of the term. The principal text-books used are Johnson's *Surveying,* and Searle's *Field Engineering.* The practical work carried on in the fall and early winter of each year is intended to cover the elementary operations required in making surveys for engineering works, such as roads, streets, railways, canals, enclosures of land, public improvements, and the laying out of structures on the ground. During the first six weeks of the following summer vacation the class is in camp as a field party. A survey is made for some line of communication, usually a railroad, including exploration, preliminary and located lines, easements to curves, profile leveling, check levels, profile making, cross-section data, cross-sectioning, transfer of line to plugs near grade points, witnessing them, and in general, the preparation of the line for construction up to the point of beginning excavation. In this connection good field and office records are required; profiles and maps are made; and the necessary computations, including those for earthwork quantities, are worked out. In addition to the railroad survey. some other piece of field work is undertaken, the selection being made according to the fitness of the locality, the number and the previous experience of the members of the class, the time, and the weather, the purpose being to fix, by practical application, the principles learned from text-books, lectures, or previous experience.

(*b*) *For Students in Mechanical and Chemical Engineering.*—The student takes a short course in the use of instruments, which is nearly all practice. The aim of the course is to cover the simple manipulations in the ordinary use of surveying instruments, and to qualify the student for such duties in this line as are apt to come under his charge.

(*c*) *Other Courses.*—Courses in land surveying, the United States Land Survey, the Canadian Survey, and in other specialties are provided, if properly qualified persons present themselves in sufficient number to form classes.

Astronomy.—Practice in the determination of time, latitude, and azimuth is required of all students in the civil engineering course. The ordinary problems necessary in field work are taken up by each student, who makes for himself a complete series of observations and reduces his own data. A thorough drill is given in the use of astronomical ephemerides and in the making of computations. As elective courses further instruction is offered in practical astronomy, and in the theory of least squares.

Geodesy.—For students prepared to undertake the work a course is offered, comprising lectures, reference reading, and written class reports on geodetic methods in the field with special reference to successful present-day practice.

Highway Construction.—A course of lectures, and text-book work, is given to students of civil engineering, on the construction and maintenance of roads, streets, pavements, and walks.. Byrne's *Highway Construction* is used as a text-book.

Municipal Engineering.—A course of lectures, prescribed reading, and recitations covers the special field of city engineering, points out its connection with, and dependence upon, other branches of engineering work, and shows how to apply the principles of engineering to the modern problems arising in the building and improving of cities.

Strength and Resistance of Materials.—A course of recitations and lectures continuing through the first half-year is devoted to this subject, and is attended by all the engineering students except those pursuing the chemical engineering course. Greene's *Structural Mechanics* is used as a text-book, and tests of wood, iron, steel, cement, and other building materials are made in the Engineering Laboratory.

Theory of Structures.—Discussion of bridge trusses, in wood and iron; arches, in wood, iron and stone; trestles; brick and stone masonry; foundations; tunnels; and theory of structures in general. In this course Rankine's *Civil Engineering* is used as a text-book, supplemented by full explanations, additional notes, lectures, examples, and problems, and illustrated by models, photographs, working drawings, and blue-prints.

Graphics.—A course of instruction extending through a year is given in the graphical analysis of roof and bridge trusses and arches under steady load, wind pressure, and moving loads. The student is made familiar with both the analytical and graphical methods of treatment, and thus possesses ready proof of the accuracy of his calculations. Greene's *Roof Trusses, Bridge Trusses,* and *Arches* are used as text-books.

Hydraulics.—The laws of the flow of water through orifices and pipes and over weirs; the gauging of streams and rivers; the designing of works for water supply, drainage, and sewerage; the laying out of canals; and the subject of river and harbor improvements are treated in this course. The text-book used is Merriman's *Hydraulics.*

The work in hydraulics is to be much extended in the near future, and will embrace the development of water supply and storage of hydraulic power plants. The new hydraulic laboratory with its equipment will afford abundant opportunity for practice in the measurement of flow under various conditions and the determination of hydraulic co-efficients, and for original investigation.

Machinery, Prime Movers, and Power Transmission.—A course of instruction is given in mechanism, or the general principles of machinery, involving the study of gearing, screws, cranks, and levers, and the dynamics of machinery. Special attention is given to turbine and other water motors, and to steam engines. Problems involving the strength and design of machines are studied at length in connection with such examples as illustrate the best practice. The instruction in power transmission covers the distribution of power by shafts, belts, ropes, hydraulic and pneumatic transmission, and the arrangement of shafting and machinery in manufacturing establishments.

Design of Shop Machinery.—The student is taught to design one or more of the standard machines used in shops. He is shown how to combine his theoretical and his practical knowledge so as to conform to the best mechanical practice. He designs one or more complete machines, and makes a detailed drawing of each part for shop use.

Designs in Engineering and Machine Construction.—Contemporaneously with the study of theory, students are furnished with the usual data for the design of some kind or type of structure or machine, and are then required to work out the problem.

Mineralogy and Geology.—The civil engineering students are required to take a brief course in mineralogy, which aims to make them acquainted with the more common minerals, and a course in the elements of geology. Advanced courses in these subjects are open as electives.

Metallurgy.—A course of instruction by lectures and recitations is given upon the subjects of fuel, refractory material, iron, and steel. The lectures are illustrated by charts and drawings of furnaces and appliances used, and by samples of furnace products.

Thermodynamics.—This course embraces the study of the principles governing the action of heat engines in general, hot-air and gas engines, air compressors, compressed-air engines, and refrigerating apparatus.

Steam Engineering.—The work in this branch covers the practical use of steam. The care and management of engines and boilers, both in use and out of use, are fully considered, and tests are made to determine the value of fuels, quality of steam, and the efficiency of furnaces, boilers, and engines.

Gas Engines, Compressed Air, and Refrigeration.—The theory is discussed under thermodynamics. Additional courses are given, covering the application of the theory, mechanical details of construction, and methods of operation.

Heating and Ventilation.—A course of lectures and recitations is given covering the theory of heat as applied in heating, the design and construction of hot-air, direct and indirect steam, hot-water, and fan systems of heating.

Dynamo Electric Machinery.—Course 1 is a short course intended for students not candidates for the degree in electrical engineering. It covers direct current generators and motors, and alternating current generators, motors, and transformers. The work includes lectures on the theory of the machines, together with laboratory work in which machines are tested. The experiments include magnetization curves, characteristic curves, efficiency, compounding for constant potential, tests of transformers, tests of lamps, etc. Visits are made to neighboring power stations. Courses 2, 3, 4 together form a series which is intended for electrical engineering students. In these courses direct current machinery (Course 2), alternating current generators and transformers (Course 3), and alternating current motors (Course 4) are studied in detail. The time is about equally divided between lectures (or recitations), and laboratory work. In the latter, tests are made giving magnetization, characteristic, and efficiency curves by all the most approved methods; transformers are tested for regulation, iron and copper losses, and efficiency; especial attention is given to the use of single phase and polyphase apparatus for the transmission of power, etc. Visits are made to neighboring electric power plants. Course 8 treats of electric railways, both for interurban and trunk lines. Recent developments involving the electrification of the terminals of two of the most important steam railway systems make the subject matter of this course of great importance. Course 10 is an advanced course in the theory of alternating current phenomena. In this course the method of Steinmetz is used.

Design of Electrical Machinery.—Two courses in electrical design give the fundamental principles and illustrate them by numerical calculations of electromagnets, of direct current generators and motors, alternators, transformers, and induction motors. The lecture courses are supplemented by exercises in drawing in which each student makes working drawings to accompany his own designs. Highly satisfactory transformers, two-phase and three-phase generators, and induction motors have been built by electrical engineering students in the engineering shops.

Electric Generating Stations.—This course deals with power and lighting electric stations. The subject is covered by lectures and visits to stations in the neighborhood, including Detroit.

Distribution of Electricity.—This course deals with systems of electrical conductors for the distribution of current for lighting and power, and with the electrical engineering problems which are involved in the distribution of electricity.

Telephone, Telegraph, Fire Alarm, Railway Signal, and Related Apparatus.—These subjects are taught in three courses, one lecture course and two laboratory courses; visits are also made to neighboring telephone exchanges. The new engineering building affords ample laboratory space for these courses, and the department expects to purchase considerable new apparatus to be available for use in 1905-1906.

Storage Battery Installations.—This course treats of the engineering applications of storage batteries. The work consists of lectures and laboratory tests. Students taking this course are expected to prepare themselves by taking the course in Primary and Storage Batteries (Physics, Course 4).

Photometry of Electric Lamps.—This course is taught by lectures and laboratory work. The proper lighting of buildings and open places is a matter of much importance, and the study of means of illumination is a subject of recognized value to the engineer. Important additions to the photometric laboratory will be available for use in 1905-1906.

Industrial Chemistry.—Under this head come those courses which treat of chemical processes on a manufacturing scale. The chief subjects are: fuels; gas; iron and steel; water; the acid, alkali, cement, and glass industries; by-products from coal and wood; starch, glucose, and sugar; fermentation and distillation; fats, oils, and soaps; bleaching and dyeing; tanning; the paper manufacture, etc.

Structural Arrangements of Ships.—This course is devoted to the discussion of the practical details relating to the various parts of a ship's structure, such as keels, framing, plating, preparation of working drawings, ordering material, general methods of construction, and Classification Societies' rules.

Ship Calculations.—A series of lectures and recitations upon the displacement and buoyancy of ships, including discussion of rules for determining areas, volumes, center of buoyancy, metacenters, change of trim, tonnage, freeboard, etc. The theory and use of the planimeter and integrator are also discussed.

Strength of Ships.—This course includes a general discussion upon the question of strength and resistance of materials, methods of obtaining curves of weights, buoyancy, shearing force, and bending moment upon ships under various conditions of wave support; general and local stresses, and strength of riveted joints.

Stability of Ships.—A series of lectures and recitations is devoted to the various methods of obtaining curves of stability. statical and dynamical, of vessels of different types under varying conditions. The geometrical properties of the surface of buoyancy, flotation, etc., are discussed, together with problems relating to the rolling of vessels in still water and in waves. Methods of reducing rolling are illustrated by models in the experimental tank.

Resistance and Propulsion of Ships.—Under this heading are treated all questions relating to the resistance of vessels to motion. The action of various forms of propellers, and their effect upon the resistance of the vessel are also discussed.

Ship and Engine Specifications.—A general discussion of the preparation of specifications. Methods of estimating weights and costs; arrangements of pumping, heating, and ventilation; auxiliary machinery, etc., are also included. In connection with the design of a ship or machinery installation each student is required to prepare a general specification.

Practical Shipbuilding.—A course of lectures is given on arrangements of shipyards, methods and sequence of work, preparation of working plans, specifications, etc. Methods of estimating weights and cost, arrangements for pumping, heating, and ventilation are also discussed.

Mould Loft Work.—The course in this subject includes the laying off and fairing a set of lines of the full sized ships; method of obtaining levels; expansion of various parts of the structure; laying off plating, and preparation of moulds.

Marine Engineering.—Under this head are treated the theoretical and practical considerations governing the design and construction of marine engines and boilers of various types. Details of construction, weight, and space occupied, vibrations, and methods of balancing engines are also treated, together with the design and arrangement of auxiliary machinery.

Drawing and Design.—The preceding courses are accompanied by work in the drawing room, which includes: laying off and fairing a set of lines from given offsets; calculations of displacement, center of buoyancy, etc., and plotting results; construction of capacity curves; calculation of change of trim and curves connected therewith; of launching; of strength and determination of curves of weight, buoyancy, shearing forces and bending moments; calculation of stresses; of curves of stability. Later, the student will work out a design for a vessel to fulfill given conditions.

In marine engine drawing the student will design a marine boiler with all details, and also a marine engine with as many of the detail plans as possible, and will make all necessary calculations.

Visits of Inspection.—As often as practicable, visits are paid to neighboring manufacturing establishments, to electric light and electric power stations, and to points of engineering interest, for the purpose of acquiring a knowledge of the methods employed in building, in the construction of bridges, machinery, and ships, and the best practice in electrical manufacturing and engineering on a large scale.

EXAMINATIONS

Examinations, usually in writing, are held at the end of each semester, but the classes are liable to be examined at any time, without notice, on any portion of their previous work.

FACILITIES FOR INSTRUCTION

The collections for illustrating the instruction given comprise models, drawings, photographs, lithographs, and blue-prints representing trusses, arches, and details of construction in iron, wood, and stone; sections of valves, pumps, and injectors; indicators and gauges; working models in various lines and full-sized machines; working drawings of bridges; engines, dynamos, etc. These collections are receiving additions from year to year, by gift and purchase, and are invaluable to the student.

Tests of engines and boilers, and of machinery in general, are made on request, and the profit of such work is devoted to extending the facilities of the engineering laboratory. The data of all experiments and tests made are kept in the laboratory records. Tests of materials are also conducted for private parties, and reported upon when desired.

All the laboratory work is on a practical basis, and is done, as nearly as possible, as it would be done in any well-arranged manufacturing establishment. The latest and best books on professional subjects are added yearly to the library, where they are accessible to all; and frequent references are made to them in the class room as the various subjects are brought forward.

PHYSICAL LABORATORY

For a description of the physical laboratory, see page 35.

CHEMICAL LABORATORY

For a description of the chemical laboratory, see page 36.

ENGINEERING SHOPS

The engineering shops are in a group of connected buildings, and occupy about 30,000 square feet of floor space.

The *Carpenter and Pattern Shop,* 40 by 127 feet, is equipped with the tools and machinery usually found in a first-class establishment. One end of the shop contains work-benches and tools needed for hand work in carpentry. The other end contains benches and tools specially adapted for pattern-making. The central portion is occupied by a good variety of wood-working machinery. A lumber and pattern loft, 40 by 120 feet, contains blue-printing apparatus, materials, and a large collection of patterns made by students.

The *Foundry,* 30 by 120 feet, is equipped with cupola and brass furnaces, core-ovens, elevator, crane, blowers, and a supply of small tools and flasks suitable for the kinds of work done. From one to two tons of castings are made weekly.

The *Blacksmith Shop,* 40 by 127 feet, contains twenty-eight modern down-draft forges, together with anvils and tools for doing all kinds of work in hand forging, and machinery for forging by mechanical processes and for working structural shapes in iron and steel. Blast is supplied to the fires by an electrically-driven blower, and the gases are removed and discharged into a brick stack by an exhaust fan electrically driven, which thoroughly ventilates and purifies the atmosphere of the room.

The *Machine Shop,* 40 by 127 feet, contains an assortment of engine-lathes, speed-lathes, turret-lathes, planers, shapers, milling machines, grinding machines, and various tools for working in metal. A well-equipped tool-room is connected with this shop.

In connection with each of these four shops there is a lecture and quiz room, in which are collected models, drawings, charts, diagrams, and books, which are used in the courses of instruction.

The *Instrument Shop,* 20 by 32 feet, contains a number of small lathes and drills, and the tools needed in constructing scientific and other apparatus.

The *Drawing Room,* 32 by 54 feet, is fitted with improved drawing-tables, lockers, and drawing cases for use with classes in workshop drawing and machine design.

The central portion of the building, 32 by 54 feet, contains in the basement a well-ventilated lavatory and locker-room, and on the first floor an engine room with a 10x20 Reynolds-Corliss engine, a store-room, and the superintendent's office.

A good part of the equipment has been designed and built in the shops. New machinery is added from time to time by construction or purchase. The entire equipment is used in instructing engineering and other students in the use of tools for working in wood and in metals, and in modern workshop methods. Opportunity is afforded to become familiar with the more common materials and forms of construction used in engineering structures, buildings, and machinery. In all work an effort is made to follow the practice of the best shops.

MECHANICAL ENGINEERING LABORATORY

This laboratory is devoted to experimental work in connection with the testing of engines, boilers, pumps, indicators, belting, gearing, lubricants, and strength of materials, and to such original work as can be undertaken with advantage. The work also extends to the testing of engines, boilers, and water-wheels of neighboring mills and electric plants. The Knowles and the Gordon pumping engines at the City Water Works have been fitted up by the company with special reference to the convenience of engineering students in making tests. The equipment contains, among other things, a 100,000-pound Olsen testing machine; a 2,000 pound cement testing machine; Thurston and Ashcroft oil testing machines; a Stirling boiler for high pressure; a high speed automatic engine; a Corliss engine; a Westinghouse compound engine; a De Laval steam turbine; a Fairbanks-Morse gas engine; a Meitz & Weiss kerosene engine; a Blake air compressor; a Rider hot-air engine; Wheeler & Wainwright surface condensers; an Alden absorption dynamometer; a Giddings traction recording dynamometer; an Emerson power scale; several other forms of dynamometers; a large electrically driven chronograph, built in the laboratory; a 36-foot open mercury column; special apparatus for testing pressure and vacuum-gauge and indicator springs; gauges; indicators; thermometers; pyrometers; tachometers; standard weights; steam pumps and injectors; rotary and centrifugal pumps; water meters; water motors, including a special universal water motor, built in the laboratory, together with pressure tanks and pumps for testing motors; hydraulic rams; water-wheels; air pumps; blowers; apparatus for making tests on radiators and pipe coverings; apparatus for furnace-gas and fuel analysis; and other apparatus having special reference to work of investigation.

Greatly increased facilities are provided in the new engineering building, recently completed.

The steam laboratories occupy a space 60 feet square on the first and second floors of the north wing, with a basement under a part of the ground floor. Adjoining is a boiler house, 34 by 34 feet having a gallery eight feet wide. It is planned to install in this laboratory as new equipment a multiple expansion engine, a gas engine plant of 100 horse-power, including a gas producer, an Armington-Sims simple engine, a compound steam pump of large capacity, a refrigerating plant, and a high pressure air compressor. The boiler room is provided with a Stirling boiler, a Buffalo Forge

Co's. direct steam driven induced draft fan, feed water heaters, econometer, weighing tanks, and all necessary accessories for boiler testing.

On the west side of the ground floor of the east wing a space 22 by 26 feet has been set apart for testing the physical properties of materials and for a cement-testing laboratory.

On the third floor of the north wing the 100-inch electrically driven ventilating fan for this wing has been installed especially for the investigation of fan heating problems. It is provided with a Reeves Transmission by means of which the speed can be varied from 100 to 400 revolutions per minute. The heaters are so arranged that any number of rows of heating pipes up to thirty-two can be had on either the suction or the blast side of the fan. This fan is also provided with a discharge pipe leading into the mould loft by means of which experiments can be made to determine air pressures and resistances on bodies of different forms at velocities varying from 15 to 100 feet per second. This apparatus, while available for heating purposes, was designed with especial reference to experimental work. It was presented to the University by the Buffalo Forge Co., Buffalo, N. Y. The two 140-inch electrically driven ventilating fans in the south and east wings, installed by the Buffalo Forge Co., are also adapted for experimental work.

THE HYDRAULIC LABORATORY

This laboratory occupies a space 40 by 60 feet on the first and second floors of the north wing, adjoining the steam laboratories. A canal four feet wide, fourteen feet six inches deep, and forty feet long extends across the middle of the laboratory. Water enters this canal from the naval tank and is returned to the tank by a centrifugal pump in a well at the far end of the canal. This canal is provided with bulkheads, screens, and weirs, and is arranged for testing the flow of water over weirs and through nozzles up to a capacity of ten cubic feet per second. The bulkhead between the naval tank and the canal is arranged for weirs and nozzles so that tests may be made for flow from a still water basin as well as in a running stream. The naval tank itself is arranged for bulkheads dividing it into three basins, each one hundred feet long. By means of a sluice in the bottom of the tank these basins can be connected to the hydraulic canal and the centrifugal pump, so that water can be pumped from one of the basins and delivered into either of the others. The laboratory will also have two weighing tanks for calibrating purposes, each holding six hundred cubic feet. A 36-inch pressure tank, designed for 250 pounds pressure, extends through two stories. This affords means for nozzle and motor experiments under high heads. An open tank eight feet wide, sixteen feet long, and five feet deep rests on a platform near the ceiling of the second floor. The centrifugal pump supplies this tank, which serves as a forebay for water wheel tests under heads up to about twenty-five feet.

ELECTRICAL ENGINEERING LABORATORY

A new laboratory, exclusively for electrical engineering, occupies the basement of the south wing of the new engineering building. The laboratory has a total area of about 5,000 square feet. It includes two large rooms for dynamo-electric machinery, one for direct-current apparatus, 54 by 29 feet, the other for alternating-current apparatus, 54 by 27 feet. There is also one large room for telegraph and telephone engineering, 35 by 19 feet, three rooms, each about 20 feet square, for research laboratories, and smaller rooms for storage battery, calibration of instruments, photometry, photography, repair shop, etc., besides the office and private laboratory of the professor in charge. On the floor above are two large recitation rooms and a drawing room for electrical engineering.

In the direct current laboratory are two 10-light series dynamos for arc lights, and four constant potential shunt or compound generators, each driven by a separate motor, also two street railway motors with a brake for load. Two of the constant potential generators are a matched pair of 30 K. W. Edison machines, available for testing by the "stray power" method.

In the alternating current laboratory are one single and two polyphase generators, also a two and three phase rotary converter, which may be run as a double current generator, and two alternating current motors. The generators are driven by separate direct current motors.

The equipment of the dynamo laboratories includes among other apparatus arc lamps, banks of incandescent lamps, ammeters, voltmeters, wattmeters, galvanometers, electro-dynamometers, resistances, rheostats, transformers, and a large storage battery. The transformers include a set for conversion from two-phase to three-phase transmission and the reverse, and a constant current transformer. A well equipped photometric room adjoins the dynamo room.

The laboratory for telegraphy and telephony is equipped with apparatus to illustrate commercial systems, including apparatus for duplex and quadruplex telegraphy, and various systems of telephone exchanges.

During the summer of 1905 several machines of the latest types will be added to the present dynamos. Considerable auxiliary apparatus will also be purchased. This increase in equipment, together with the enlarged laboratory space, will improve the efficiency of all the courses offered by the department.

The University lighting plant, consisting of one 200 K. W. and two 75 K. W. Thompson-Ryan generators, is available for instruction in the department. The 200 K. W. machine is directly connected to a compound engine run at a speed of 180 revolutions a minute. The two 75 K. W. machines are connected by the Arnold system to two 15 by 14 engines and run at a speed of 250 revolutions a minute. The system is a 220-volt one throughout, with both incandescent and arc lamps (two in a series) on the same circuits. All the feeders and mains are underground, except those running from the central plant to the University Hospital, which is supplied with current from the central plant on the campus by means of heavy cables and a "booster." The Arnold system permits of connecting either of the pair of dynamos to either engine, or of disconnecting either so that it may be tested for efficiency by purely electrical methods. A large number of motors, varying in capacity from 1 to 50 H. P., are in service and are available for testing purposes.

MARINE ENGINEERING LABORATORY

In the basement of the new engineering building the east wing is devoted to the experimental tank. This tank is 300 feet long. 22 feet wide, with a depth of water of 10 feet. At the south end is a model room and work shop for the purpose of making models of vessels. The tank is spanned by a traveling truck which is driven by a motor and can be run at any desired speed. Upon this truck are mounted the dynamometers for measuring the resistance of the models of various forms at different speeds.

Experiments upon ships' forms will be conducted in a systematic manner and the results of such experiments will give the student an intelligent idea as to the capabilities of any given form. The action of bilge keels upon the rolling of vessels, and upon the speed, will also be subject to investigation. It is proposed in the near future to install special apparatus for the investigation of the action and properties of screw propellers.

MOULD LOFT

The mould loft is situated on the top floor of the north wing of the engineering building, occupying a floor space of 3,600 square feet. The loft is fitted with the usual equipment, such as battens, bevel boards, benches for making moulds, etc. Students are also allowed the use of the mould loft for the construction of small vessels. For this purpose steam boxes and bending slabs are provided.

NEW ENGINEERING BUILDING

The new engineering building occupies the southeast corner of the campus. The central pavilion, 57 feet wide on the front, faces the corner, its archway spanning the main diagonal walk. One wing, 134 feet long by 64 feet wide, faces South University Avenue; another wing, 224 feet long by 61 feet wide, faces East University Avenue, with a third wing, 61 feet square, extending west from the north end of the east wing, and with an extension, 25 feet wide and 100 feet long, to the north to accommodate the naval tank of the marine laboratory.

The outer walls are over 1,100 feet around. The ground floor contains a floor-space of 25,800 square feet, the second floor 23,300, the third floor, 23,200, and the fourth floor, 20,300, the total being 92,600 square feet.

The building contains the electrical laboratories, the physical testing laboratories, the mechanical and steam laboratories, the hydraulic laboratories, the marine laboratory, and the mould loft. Descriptions of these may be found in the preceding pages.

OTHER LABORATORIES, LIBRARIES, AND MUSEUMS

For a description of other University laboratories, libraries, and collections for the study of art, archæology, ethnology, mineralogy, geology, palæontology, zoology, etc., and for general information concerning the University, see pages 27 to 48.

ASTRONOMICAL OBSERVATORY

For a description of the astronomical observatory, see page 30.

THE WATERMAN GYMNASIUM

For a description of the gymnasium, see page 41.

THE ENGINEERING SOCIETY

Several organizations of students are maintained, aside from the usual literary societies, for the reading of papers and holding discussions in various scientific lines. The Engineering Society, composed of and officered by students of this department, holds meetings, at which papers of technical interest are read, and reports made upon observations and experiments. A reading room is maintained by the society, accessible to all students of the department Several engineers of prominence have spoken before the society in past years. A semi-annual, called the Michigan Technic, containing papers read before the society, abstracts of theses, contributed articles from alumni, and other matters of professional interest, is published by the students.

COURSES OF INSTRUCTION

The courses of instruction are subject to change from time to time; those announced for the year 1904-1905 and required for graduation, as stated on pages 163 to 178, together with some advanced, elective, and technical courses, are described on the following pages.

The courses given in the Department of Literature, Science, and the Arts, and described on pages 62 to 124, are (with the exception of the courses in French and in German, for which special permission is required) all open as electives to engineering students who are qualified to pursue them with advantage.

A student enrolled in the Department of Literature, Science, and the Arts, who desires to elect any of the work in the Department of Engineering, not included in the courses offered in the former department, must obtain written permission from the Dean of that department, have it approved by the Associate Dean of the Department of Engineering, and attach it to his election slip.

RULES RELATING TO ELECTION OF STUDIES

Students are classified and assigned to sections by a committee of the Faculty, and their work must be arranged and carried on in conformity with the following regulations:—

a. Before entering on any study the student must give satisfactory evidence that he is prepared to pursue it with advantage.

b. No student is allowed to elect merely a part of a course, without special permission of the Faculty.

c. No credit is allowed to a student for work in any course unless the election of the work is formally entered on his classification blank before the work is begun.

d. After the first Saturday of each semester no study can be taken up or dropped without special permission of the Faculty.

e. All requests to the Faculty must be made on printed forms furnished by the Secretary of the department.

f. The Faculty requires a student to drop a part of his work at any time if, in its opinion, he is undertaking too much; or to take additional work, if it thinks he is not sufficiently employed.

g. The Faculty reserves the right to withdraw the offer of any elective study not chosen by at least six persons.

h. In cases of exceptional proficiency, permission to take hours in addition to those named in the published schedule is granted by the Faculty on special request; but in all cases requests for permission to take an additional number of hours must be in the hands of the Secretary (see *e*) on or before the *first Saturday* of the semester during which the additional work is required. Permission to take extra hours is not granted to students in their first semester of residence.

i. After matriculation, a student cannot, without special permission of the Faculty, be admitted to examination in any one of the courses given, until he has received in the University the regular instruction in such course.

RULES RELATING TO REMOVAL OF CONDITIONS

For the rule governing the removal of entrance conditions see page 145.

Examinations for the removal of conditions incurred in regular work are held three times a year, viz., on the last Friday and Saturday of the Summer Vacation, the first Friday and Saturday after the Christmas Vacation, and the first Friday and Saturday after the Spring Recess. Students who wish to present themselves for examination in any subject as above must present to the instructor in charge as early as the Wednesday before the examination a supplementary examination slip obtained from the Secretary.

Any student reported as passed conditionally in any course must remove such condition at one of the first two regular examinations for the removal of conditions immediately following the semester in which the condition was incurred; otherwise the course passed conditionally will be regarded as not passed.

If any student is reported as "incomplete" in an examination, the time limit for making up the deficiency is the same as if he had been reported as passed conditionally.

COURSES OFFERED IN 1904-1905

The courses offered for the year 1904-1905 are described below. The amount of credit toward graduation assigned to each course is indicated by the expressions *one hour, two hours,* etc.

ENGLISH

FIRST SEMESTER

1. Paragraph and Theme Writing. Seven sections. *Four hours.* Mr. R. A. ABBOTT, Mr. TARBOX, and Mr. FULTON.

1*a*. Theme Writing. Two sections. *Two hours.* Mr. R. A. ABBOTT and Mr. TARBOX.

2. Technical Journalism. *Two hours.* Mr. R. A. ABBOTT.

SECOND SEMESTER

1. Paragraph and Theme Writing. Seven sections. *Four hours.* Mr. R. A. ABBOTT, Mr. TARBOX, and Mr. FULTON.

1*a*. Theme Writing. Four sections. *Two hours.* Mr. FULTON.

GERMAN

FIRST SEMESTER

1. Elementary Course. Grammar and reading, with constant practice in writing and speaking German. Four sections. *Four hours.* Mr. SCHOLL, Mr. DUBEE, and Mr. MENGER.

3. Reading of German Scientific Literature. Six sections. *Four hours.* Assistant Professor WAIT, Mr. DUBEE, and Mr. MENGER.
4. Reading of German Scientific Literature continued. Two sections. *Four hours.* Mr. DUBEE and Mr. MENGER.

   In Courses 3 and 4 students of special aptitude and proficiency are given opportunity and encouraged to do extra work.
5. Advanced Course in German Scientific Literature. *Three hours.* Assistant Professor WAIT.

SECOND SEMESTER

1. Elementary Course. Grammar and reading, with constant practice in writing and speaking German. Two sections. *Four hours.* Assistant Professor WAIT and Mr. MENGER.
2. Elementary Course continued. Grammar and reading, with constant practice in writing and speaking German. Four sections. *Four hours.* Assistant Professor WAIT, Mr. SCHOLL, Mr. DUBEE, and Mr. MENGER.
4. Reading of German Scientific Literature continued. Eight sections. *Four hours.* Assistant Professor WAIT, Mr. SCHOLL, Mr. DUBEE, and Mr. MENGER.
5. Elective Course, selected from the following four options. *Three hours.* Assistant Professor WAIT.
   a. Advanced Course in German Scientific Literature.
   b. German Conversation.
   c. Commercial and Journalistic German.
   d. Literary German.

FRENCH

FIRST SEMESTER

1. Elementary Course. Grammar and reading, with constant practice in writing and speaking French. Four sections. *Four hours.* Mr. BIRD and Mr. E. L. ADAMS.
3. Reading of French Scientific Literature. Four sections. *Four hours.* Mr. PECK, Mr. BIRD, and Mr. E. L. ADAMS.
5. Advanced Course in French Scientific Literature. *Three hours.* Mr. BIRD.

SECOND SEMESTER

1. Elementary Course. Grammar and reading, with constant practice in writing and speaking French. *Four hours.* Mr. E. L. ADAMS.
2. Elementary Course continued. Grammar and reading, with constant practice in writing and speaking French. Five sections. *Four hours.* Mr. BIRD and Mr. E. L. ADAMS.
4. Reading of French Scientific Literature continued. Three sections. *Four hours.* In Courses 3 and 4 students of special aptitude and proficiency are given opportunity and encouraged to do extra work. Mr. PECK, Mr. BIRD, and Mr. E. L. ADAMS.

5. Elective Course, selected from the following four options. *Three hours.* Mr. Bird.
   - *a.* Advanced Course in French Scientific Literature.
   - *b.* French Conversation.
   - *c.* Commercial and Journalistic French.
   - *d.* Literary French.

SPANISH

FIRST SEMESTER

1. Elementary Course. Grammar and reading, with constant practice in writing and speaking Spanish. Two sections. *Four hours.* Mr. Peck and Mr. Bird.
3. Reading, Conversation, and Business Correspondence. *Four hours.* Mr. E. L. Adams.

SECOND SEMESTER

2. Elementary Course continued. Grammar and reading, with constant practice in writing and speaking Spanish. Two sections. *Four hours.* Mr. Peck and Mr. Bird.

MATHEMATICS

Students of engineering are required to take in order Courses 1, 2, 3, 4, 5, and 6. Those admitted with a deficiency in plane trigonometry may remove it by completing Course 1*a*, but the credit thus obtained is entered on the admission, not the graduation requirements.

FIRST SEMESTER

1. Algebra and Analytic Geometry (I). Fifteen sections. *Four hours.* Mr. Butts, Dr. Running, Dr. Karpinski, Dr. Field, Mr. Escott, and Dr. Bradshaw.

1*a*. Plane Trigonometry. Six sections. *Two hours.* Mr. Butts, Dr. Pierce, Dr. Karpinski, Mr. Marshall, and Dr. Bradshaw.

3. Calculus. Ten sections. *Five hours.* Professors Ziwet and Markley, Assistant Professor Glover, Mr. Butts, Dr. Pierce, Dr. Running, Dr. Field, Mr. Escott, and Mr. Marshall.

5. Calculus and Mechanics (II). Seven sections. *Three hours.* Professor Ziwet, Assistant Professor Glover, Mr. Butts, Dr. Pierce, Dr. Running, and Mr. Marshall.

SECOND SEMESTER

1. Algebra and Analytic Geometry (I). *Four hours.* Dr. Field.

1*a*. Plane Trigonometry. *Two hours.* Dr. Pierce.

2. Analytic Geometry (II). Fifteen sections. *Four hours.* Mr. Butts, Dr. Running, Dr. Karpinski, Dr. Field, Mr. Escott. Mr. Marshall, and Dr. Bradshaw.

4. Calculus and Mechanics (I). Ten sections. *Five hours.* Professors Ziwet and Markley, Assistant Professor Glover, Mr. Butts, Dr. Pierce, Dr. Running, Dr. Field, Mr. Escott, and Mr. Marshall.

6. Calculus and Mechanics (III). Seven sections. *Two hours.* Professor Ziwet, Assistant Professor Glover, Mr. Butts, Dr. Pierce, Dr. Running, and Mr. Marshall.

PHYSICS

FIRST SEMESTER

2. Heat, Electricity, and Magnetism. Lectures and recitations. Two sections. *Five hours.* Professor Carhart, Dr. Randall, Mr. Morehouse, and Mr. Henderson.

Course 2 must be preceded by Course 1 and by Course 1 in Chemistry.

3*b*. Physical Laboratory Work for Beginners. *Two hours.* Mr. Morehouse and Mr. Mellencamp.

Course 3*b* must be preceded or accompanied by Course 1.

3*c*. Laboratory Work in Mechanical and Electrical Measurements. *Three hours.* Mr. Morehouse and Mr. Henderson.

Course 3*c* must be preceded by Course 2. It is designed for students who wish to prepare for the study of dynamo-electric machinery.

5. Electrical Measurements. Lectures, recitations, and laboratory work. Two sections. *Four hours.* Dr. A. W. Smith and Mr. Morehouse.

7. Intermediate Course in Electricity and Magnetism. *Two hours.* Professor Carhart.

Course 7 must be preceded by Course 2. A knowledge of calculus is required.

8. Heat. Laboratory work. *Two hours.* Dr. Randall.

Course 8 must be preceded by Course 2.

9. Theory of Heat. *Two hours.* Dr. Randall.

SECOND SEMESTER

[1. Mechanics, Sound, and Light. Lectures and recitations. *Five hours.*

For Course 1 a knowledge of plane trigonometry is indispensable.

Omitted in 1904-1905.]

3*c*. Laboratory Work in Mechanical and Electrical Measurements. *Three hours.* Dr. Randall and Mr. Henderson.

Course 3*c* must be preceded by Course 2. It is designed for students who wish to prepare for the study of dynamo-electric machinery.

1. Primary and Storage Batteries. Lectures, recitations, and laboratory work. Three sections. *Two hours.* Mr. Morehouse.

Course 4 must be preceded by Courses 1, 2, and 3, and by Chemistry 2.

10. Mathematical Electricity and Magnetism. *Two hours.* Professor PATTERSON.

Course 10 must be preceded by Course 7.

12. Electrical Measurements. Continuation of Course 5. Recitations and laboratory work. *Three hours.* Dr. A. W. SMITH and Mr. HENDERSON.

[16. Theories of Solutions, Electrolytes, and the Voltaic Cell. Lectures and laboratory work. *Three hours.*

Course 16 must be preceded by Course 2 in Electrical Engineering and by Course 2 in Chemistry. It is also desirable for the student to have had laboratory work in chemistry.

Omitted in 1904-1905.]

CHEMISTRY

Students admitted with a deficiency in entrance chemistry may remove it by completing Course 1, but the credit thus obtained is entered on the admission, not the graduation requirements.

Other courses in chemistry are given in the Department of Literature, Science, and the Arts.

FIRST SEMESTER

1. Elementary Inorganic Chemistry. Experimental lectures and recitations. *Two hours.* (For entrance see above.) Professor S. L. BIGELOW.

2. Principles of Inorganic Chemistry. Lectures and recitations. *Four hours.* Mr. SMEATON and Mr. HOUGHTON.

Open to those who have passed the entrance requirements in chemistry.

3. Qualitative Analysis. Recitations and laboratory work. *Seven hours.* Professor JOHNSON and Mr. H. H. WILLARD.

Open to those who have completed Course 2 or an equivalent.

5. Quantitative Analysis. Beginning course. Recitations and laboratory work. *Five hours.* Professor CAMPBELL.

Open to those who have completed Course 3.

7. Organic Chemistry. Lectures and library studies. *Five hours.* Professor GOMBERG.

Open to those who have completed Course 3.

28. Advanced Quantitative Analysis. Laboratory work. *Five hours.* Professor CAMPBELL.

Open to those who have completed Course 5.

29. Iron and Steel Analysis. Laboratory work. *Five hours.* Professor CAMPBELL.

Open to those who have taken Course 28 and who receive special permission.

31. Independent Work in Mineral Analysis. Laboratory work. *Five hours.* Professor CAMPBELL.

Open to those who have completed Course 28.

32. Technical Examination of Gold and Silver Ores, including the Fire Assay. Laboratory work with lectures and reading. *Two hours.* Assistant Professor WHITE.
Open to those who have completed Course 28. Course 2 in Mineralogy is recommended.

33. Chemical Technology. A study of chemical manipulations and reactions on a manufacturing scale. Fuels, water, the acid and alkali industries, clay products, cements, and glass. Lectures, recitations, and assigned reading. *Five hours.* Assistant Professor WHITE.
Open to those who have completed Course 3.

34. Chemical Reading. *One hour.* Professor CAMPBELL.
Course 34 requires special permission.

35. Technical Gas Analysis, including Calorimetry and Photometry. Laboratory work. *Two hours.* Assistant Professor WHITE.
Open to those who have completed Course 5.

39. Chemical Technology. Laboratory work. Courses are regularly offered in:—1. The manufacture of hydraulic cement, with special reference to relation of composition and temperature of burning to physical properties. 2. Coal, gas, and its by-products. 3. Influence of heat and mechanical treatment on constitution of iron and steel. 4. The chemistry of beet sugar, with special reference to its manufacture. Other subjects may be chosen on consultation. *Credit arranged.* Professors CAMPBELL and GOMBERG, Assistant Professor WHITE, Dr. DUNLAP, and Mr. SMEATON.
Course 39 must be preceded by Courses 28 and 33, with Courses 7 and 38 in addition, if the subject chosen is in organic technology.

42. Organic Synthesis. Laboratory work. *Three, four, or five hours.* Professor GOMBERG.
Course 42 must be preceded by Course 5 and preceded or accompanied by Course 7.

SECOND SEMESTER

2. Principles of Inorganic Chemistry. Lectures and recitations. *Four hours.* Mr. SMEATON and Mr. HOUGHTON.
Open to those who have passed the entrance requirements in chemistry.

3. Qualitative Analysis. Recitations and laboratory work. *Seven hours.* Professor JOHNSON and Mr. H. H. WILLARD.
Open to those who have completed Course 2 or an equivalent.

5. Quantitative Analysis. Beginning course. Recitations and laboratory work. *Five hours.* Professor CAMPBELL.
Open to those who have completed Course 3.

28. Advanced Quantitative Analysis. Laboratory work. *Five hours* Professor CAMPBELL.
Open to those who have completed Course 5.

29. Iron and Steel Analysis. Laboratory work. *Five hours.* Professor CAMPBELL.
   Open to those who have taken Course 28 and who receive special permission.

31. Independent Work in Mineral Analysis. Laboratory work. *Five hours.* Professor CAMPBELL.
   Open to those who have completed Course 28.

34. Chemical Reading. *One hour.* Professor CAMPBELL.
   Course 34 requires special permission.

35. Technical Gas Analysis, including Calorimetry and Photometry. Laboratory work. *Two hours.* Assistant Professor WHITE.
   Open to those who have completed Course 5.

38. Organic Technology. The industrial chemistry of organic compounds. Destructive distillation of coal and wood with recovery of by-products; illuminating gas; starch, glucose, and sugar; fermentation and distillation; fats, oils, and soaps; bleaching and dyeing; tanning; paper manufacture. Lectures, recitations, and assigned reading. *Five hours.* Assistant Professor WHITE.
   Open to those who have completed Courses 7 and 33.

39. Chemical Technology. Laboratory work. Courses are regularly offered in:—1. The manufacture of hydraulic cement, with special reference to relation of composition and temperature of burning to physical properties. 2. Coal, gas, and its by-products. 3. Influence of heat and mechanical treatment on constitution of iron and steel. 4. The chemistry of beet sugar, with special reference to its manufacture. Other subjects may be chosen on consultation. *Credit arranged.* Professors CAMPBELL and GOMBERG, Assistant Professor WHITE, Dr. DUNLAP, and Mr. SMEATON.

42. Organic Synthesis. Laboratory work. *Three, four, or five hours.* Professor GOMBERG.
   Course 42 must be preceded by Course 5 and preceded or accompanied by Course 7.

METALLURGY

FIRST SEMESTER

1. Fuel and Refractory Material; Iron and Steel. *Three hours.* Professor CAMPBELL.
   Course 1 must be preceded by Course 2 in Chemistry.

2. Descriptive study of the influence of mechanical and heat treatment upon the microstructure and properties of metals and alloys. Lectures and reading. *One hour.* Mr. SMEATON.
   Course 2 must be preceded by Course 1.

3. Micrometallography. Laboratory course on the microscopic structure of metals and alloys as related to their physical and chemical properties. *One hour.* Mr. SMEATON.
   Course 3 must be preceded or accompanied by Course 2.

SECOND SEMESTER

2. Descriptive study of the influence of mechanical and heat treatment upon the microstructure and properties of metals and alloys. Lectures and reading. *One hour.* Mr. SMEATON.
   Course 2 must be preceded by Course 1.
3. Micrometallography. Laboratory course on the microscopic structure of metals and alloys as related to their physical and chemical properties. *One hour.* Mr. SMEATON.
   Course 3 must be preceded or accompanied by Course 2.

ASTRONOMY

FIRST SEMESTER

4. Practical Astronomy. Use of sextant and transit. *Three hours.* Professor A. HALL.
   Course 4 requires a knowledge of spherical trigonometry and of differential and integral calculus.
5. Spherical Astronomy. *Three hours.* Professor A. HALL.
   In Course 5 some standard work on spherical astronomy is rapidly read, and special subjects are given out for discussion. Courses 5 and 9 follow Course 4 and are intended for students interested in geodetic work.
13. Theory of Least Squares. *Two hours.* Professor A. HALL.

SECOND SEMESTER

4. Practical Astronomy. Use of sextant and transit. *Three hours.* Professor A. HALL.
   Course 4 requires a knowledge of spherical trigonometry and of differential and integral calculus.
9. Practical Astronomy: extended course. *Credit arranged.* Professor A. HALL.
13. Theory of Least Squares. *Two hours.* Professor A. HALL.

MINERALOGY

FIRST SEMESTER

1. Elementary Mineralogy. Lectures and laboratory work. Two sections. *Two hours.* Assistant Professor KRAUS.
   Course 1 must be preceded by Chemistry 2.

SECOND SEMESTER

1. Elementary Mineralogy. Lectures and laboratory work. *Two hours.* Assistant Professor KRAUS.
   Course 1 must be preceded by Chemistry 2.
2. General Mineralogy. Lectures and laboratory work. *Five hours.* Assistant Professor KRAUS.
   Course 2 must be preceded by Chemistry 2 and preceded or accompanied by Chemistry 3.

3. Crystal Measurements. Laboratory work. *Three hours.* Assistant Professor Kraus.

Course 3 must be preceded by Course 2.

4. Advanced Work along such lines as may be agreed upon. *Credit arranged.* Assistant Professor Kraus.

GEOLOGY

FIRST SEMESTER

1. Elements of Geology: Historical Geology. *Three hours.* Professor Russell.

SECOND SEMESTER

6. Elements of Geology: Dynamic and Structural Geology. *Three hours.* Professor Russell.

10. Economic Geology. Lectures on the mode of occurrence, theories of deposition, concentration, etc., of metallic and nonmetallic minerals, building stones, etc., of commercial value. Special attention is given to the mineral wealth of Michigan. *Two hours.* Dr. Lane.

Course 10 must be preceded by Course 1 or 6.

DRAWING

FIRST SEMESTER

1. Geometrical Drawing. Eight sections. *Four hours.* Assistant Professor Goulding, Mr. Wilson, Mr. Bartlett, Mr. Stroebe, and Mr. Murphey.

4. Free-Hand Drawing. Pencil, Pen and Ink. Sketching. Five sections. *Three hours.* Professor C. S. Denison, Miss Hunt, Mr. Stroebe, and Mr. Murphey.

10. Continuation of Course 8. *Two hours.* Professor C. S. Denison and Miss Hunt.

Course 10 must be preceded by Courses 4, 7, and 8.

13. Water-Color Drawing. *Three hours.* Professor C. S. Denison and Miss Hunt.

Course 13 must be preceded by Course 8, and requires special permission.

SECOND SEMESTER

1. Geometrical Drawing. Six sections. *Four hours.* Mr. Wilson, Mr. Bartlett, Mr. Stroebe, and Mr. Murphey.

4. Free-Hand Drawing. Pencil, Pen and Ink. Sketching. Six sections. *Three hours.* Professor C. S. Denison, Miss Hunt, Mr. Bartlett, Mr. Stroebe, and Mr. Murphey.

5. Descriptive Geometry. Recitations and Drawing. Four sections. *Four hours.* Professor C. S. Denison, Assistant Professor Goulding, and Mr. Wilson.

6. Shades, Shadows, and Perspective. *Three hours.* Professor C. S. DENISON.
   Course 6 must be preceded by Course 5.
7. Free-Hand Drawing (advanced). *Three hours.* Miss HUNT.
8. Architectural and Water-Color Drawing. Two sections. *Two hours.* Miss HUNT.
   Course 8 must be preceded by Course 1 or 4.
14. Stereotomy. Three sections. *Two hours.* Professor C. S. DENISON and Mr. WILSON.
   Course 14 must be preceded by Course 5.
16. Free-Hand Lettering. *Two hours.* Assistant Professor GOULDING.
   Course 16 must be preceded by Course 1.
17. Spherical Projections. *One hour.* Professor C. S. DENISON.
   Course 17 must be preceded by Course 5.

SHOP PRACTICE

All courses in shop practice are under the direction of Mr. W. L. MIGGETT, Superintendent of Shops. Instruction is given in the various branches by special shop assistants. Reading is assigned upon general workshop construction, equipment, and management.

Special arrangements are made for students who desire to take more advanced work in the shop courses with a view to preparing themselves for teaching these subjects.

FIRST SEMESTER

1. Carpentry and Blacksmithing. *Four hours.*
1*b*. Pattern Making *Two hours.*
3*a*. Foundry Work. *Two hours.*
3. Machine Shop. *Four hours.*

SECOND SEMESTER

1. Carpentry and Blacksmithing. *Four hours.*
1*b*. Pattern Making. *Two hours.*
3*a*. Foundry Work. *Two hours.*
3. Machine Shop. *Four hours.*
4*b*. Machine Shop. *Two hours.*

SURVEYING

FIRST SEMESTER

1. Lectures, Text-book, and Field Practice. *Five hours.* Professor J. B. DAVIS and Mr. MERRICK.
   The field practice in Course 1 continues during favorable weather until Christmas.
4. Use of Instruments. *One hour.* Professor J. B. DAVIS and Mr. MERRICK.

SECOND SEMESTER.

2. Continuation of Course 1. Lectures and text-book. *Five hours.* Professor J. B. DAVIS and Mr. MERRICK.
   Course 2 must be preceded by Course 1.
5. Topography. Transit and stadia. Plane table. Camera, field work, and drawing. *Four hours.* Professor J. B. DAVIS and Mr. MERRICK.
7. Geodesy. Geodetic methods. Lectures and text-book. *Three hours.* Professor J. B. DAVIS.
   Course 7 must be preceded by Courses 1 and 2.

CIVIL ENGINEERING

FIRST SEMESTER

[1. Municipal Engineering. Lectures and text-book. *Five hours.* Professor WILLIAMS.
   Omitted in 1904-1905.]

3. Graphical Analysis of Structures. Five sections. *Two hours.* Professor WILLIAMS, Assistant Professors WRENTMORE and GREENE, and Mr. WILSON.
4. Graphical Analysis of Structures (advanced). Two sections. *Two hours.* Assistant Professor WRENTMORE.
   Course 4 must be preceded by Course 3.
6. Engineering. Theory of Construction. Two sections. *Two hours.* Assistant Professor GREENE.
   Course 6 must be preceded by Course 4 in Mathematics.
7. Engineering Design. *Five hours.* Assistant Professors WRENTMORE and GREENE.
   Course 7 accompanies Course 6, and must be preceded by Course 5.
9. Hydraulics. Three sections. *One hour.* Professor WILLIAMS.
   Course 9 must be preceded by Mathematics 5.
15. Municipal Engineering. *Two hours.*

Primarily for Graduates

11. Engineering Design (advanced). *Five hours.* Professor WILLIAMS and Assistant Professors WRENTMORE and GREENE.
    Course 11 must be preceded by Courses 4, 6, and 7.

[12. Water Supply and Sewerage. *Two hours.*
   Omitted in 1904-1905.]

SECOND SEMESTER

2. Test of Materials. *One hour.* Mr. TILDEN.
   Course 2 must be preceded or accompanied by Course 5.
3. Graphical Analysis of Structures. Two sections. *Two hours.* Assistant Professor GREENE and Mr. TILDEN.
4. Graphical Analysis of Structures (advanced). Two sections. *Two hours.* Assistant Professor WRENTMORE.
   Course 4 must be preceded by Course 3.

5. Strength and Resistance of Materials. Seven sections. *Three hours.* Professor WILLIAMS, Assistant Professors WRENTMORE and GREENE, and Mr. TILDEN.
   Course 5 must be preceded by Mathematics 4.
8. Engineering. Theory of Construction. *Three hours.* Assistant Professor WRENTMORE.
   Course 8 must be preceded by Courses 3 and 6.
10. Hydraulic and Water Supply Engineering. *Five hours.* Professor WILLIAMS.
   Course 10 must be preceded by Course 9. It is open only to fourth year and graduate students.

Primarily for Graduates

11. Engineering Design (advanced). *Three hours.* Assistant Professor GREENE.
   Course 11 must be preceded by Courses 4, 6, and 7.
16. Experimental Hydraulics. A study of existing experiments followed by experimental work in the hydraulic laboratory. *Two hours.* Professor WILLIAMS.

MECHANICAL ENGINEERING

FIRST SEMESTER

1. Elements of Machines. Nomenclature. *Two hours.* Mr. BURSLEY and Mr. LOOMIS.
2. Elements of Mechanism. Seven sections. *Two or three hours.* Professor C. N. DENISON, Assistant Professor GOULDING, Mr. WILSON, Mr. BARTLETT, and Mr. LOOMIS.
   Course 2 must be preceded by Mathematics 1 and Drawing 1 and 5.
4. Boilers. Steam Engines. Five sections. *Two hours.* Professor ALLEN and Assistant Professor ANDERSON.
   Course 4 must be preceded by Physics 1 and by Mathematics 4.
6. Machine Design. Machine Tools. Two sections. *Two hours.* Mr. MIGGETT.
   Course 6 must be preceded or accompanied by Course 2, and preceded by Drawing 1, 4, and 5.
7. Hydraulic Machinery. Lecture and quiz. *Two hours.* Professor M. E. COOLEY, Mr. BRAGG, and Mr. LOOMIS.
   Course 7 must be preceded by Mathematics 4 and by Physics 1.
8. Theory of Machine Design. Two sections. *Three hours.* Assistant Professor HAZELTON.
   Course 8 must be preceded by Civil Engineering 5.
10. Machine Design. Hoisting Machinery. *Three hours.* Assistant Professor HAZELTON.
   Course 10 must be preceded or accompanied by Course 8, and preceded by Course 6.
11. Laboratory Work. Steam Engineering. *Three hours.* Assistant Professor ANDERSON.

Course 11 must be preceded or accompanied by Courses 4, 7, 9.

12. Machine Design. Boilers and Engines. Two sections. *Two hours.* Assistant Professor HAZELTON.
Course 12 must be preceded by Courses 4, 5, 6, and by Civil Engineering 5.

19. Gas Engines. *Two hours.* Professor ALLEN.
Course 19 must be preceded by Course 13.

Primarily for Graduates

16. Heating and Ventilation. *Two hours.* Professor ALLEN.
Course 16 must be preceded by Course 4.

18. Hydraulic Machinery (advanced). *Two hours.* Professor M. E. COOLEY.
Course 18 must be preceded by Course 7.

20. Laboratory Work. Advanced Course. *Two hours.* Professor ALLEN.
Course 20 must be preceded by Courses 9, 11.

SECOND SEMESTER

1. Elements of Machines. Nomenclature. *Two hours.* Mr. LOOMIS.

4. Boilers. Steam Engines. Four sections. *Two hours.* Mr. BRAGG, Mr. LOOMIS, and Mr. HIGBIE.
Course 4 must be preceded by Physics 1 and preceded or accompanied by Mathematics 4.

5. Valve Gears. Graphical Statics of Mechanism. Four sections. *Two hours.* Assistant Professors WRENTMORE and GOULDING and Mr. LOOMIS.
Course 5 must be preceded by Course 2.

6. Machine Design. Machine Tools. Three sections. *Two hours.* Mr. MIGGETT and Mr. HARGRAVE.
Course 6 must be preceded by Course 2.

7. Hydraulic Machinery. *Two hours.* Mr. BRAGG.
Course 7 must be preceded by Mathematics 4.

9. Laboratory Work. Power Measurements. Machine Testing. Five sections. *Two hours.* Mr. BURSLEY and Mr. HIGBIE.
Course 9 must be preceded by Course 4.

10. Machine Design. Hoisting Machinery. *Three hours.* Assistant Professor HAZELTON.
Course 10 must be preceded or accompanied by Course 8, and preceded by Course 6.

11. Laboratory Work. Steam Engineering. Three sections. *Three hours.* Assistant Professor ANDERSON and Mr. BURSLEY.
Course 11 must be preceded or accompanied by Courses 4, 7, 9.

12. Machine Design. Boilers and Engines. *Two hours.* Mr. LOOMIS.
Course 12 must be preceded by Course 8.

13. Thermodynamics. Steam and Other Heat Engines. Three sections. *Three hours.* Professor ALLEN and Assistant Professor ANDERSON.

Course 13 must be preceded by Course 4.

14. Power Plants. Power Transmission. *Two hours.* Professor M. E. COOLEY.

Course 14 must be preceded by Courses 4, 7.

17. Compressed Air. Mechanical Refrigeration. *Two hours.* Professor ALLEN.

Course 17 must be preceded by Course 13.

Primarily for Graduates

22. Thermodynamics (advanced). Steam Turbines. *Two hours.* Professor ALLEN.

Course 22 must be preceded by Course 13.

23. Machine Design (advanced). *Two hours.* Assistant Professor HAZELTON.

Course 23 must be preceded by Courses 10 and 12.

ELECTRICAL ENGINEERING

FIRST SEMESTER

[1. Dynamo-Electric Machinery. Lectures, recitations, and laboratory work. *Three hours.* Professor PATTERSON and Mr. BAILEY.

Course 1 must be preceded by Physics 1, 2, 3, and 4 (or 3*c*). It is intended for students not candidates for the degree in electrical engineering.

In 1904-1905 Course 1 is given in the second semester; hereafter it will be given in the first semester.]

3. Alternating Current Generators and Transformers. Lectures, recitations, and laboratory work. *Four hours.* Professor PATTERSON and Mr. BAILEY.

Course 3 must be preceded by Course 2.

5. Design of Electrical Machinery and Appliances. Lectures, recitations, and drawing. *Four hours.* Professor PATTERSON and Mr. BAILEY.

Course 5 must be preceded by Course 1 or 2.

7. Photometry of Electric Lamps. Lectures, recitations, and laboratory work. *One hour.* Professor PATTERSON.

Course 7 must be preceded by Course 1 or 2.

9. Storage Battery Installations. Lectures and laboratory work. *Two hours.* Mr. BAILEY.

[11. Electric Generating Stations and Sub-Stations. Lectures. *One hour.*

Course 11 must be preceded by Course 1 or 2.

Omitted in 1904-1905.]

13. Telephone, Telegraph, Fire Alarm, Railway Signal, and Related Apparatus. Lectures and recitations. *Two hours.* Mr. MOREHOUSE.
    Course 13 must be preceded or accompanied by Course 1 or 2.

[15. Telephone, Telegraph, Fire Alarm, Railway Signal, and Related Apparatus. Laboratory work. *Two hours.* Mr. MOREHOUSE.
    Course 15 must be preceded or accompanied by Course 13.
    Omitted in 1904-1905.]

SECOND SEMESTER

2. Direct Current Machinery. Lectures, recitations, and laboratory work. *Four hours.* Professor PATTERSON and Mr. BAILEY.
    Course 2 must be preceded by Physics 1, 2, 3, 4, and 5. It is required for candidates in electrical engineering.
4. Alternating Current Motors. Lectures, recitations, and laboratory work. *Two hours.* Professor PATTERSON and Mr. BAILEY.
    Course 4 must be preceded by Course 1 or 3.
6. Design of Electrical Machinery and Appliances. Drawing. *Two hours.* Mr. BAILEY.
    Course 6 must be preceded by Course 5, of which it is the continuation.
8. Electric Railways. Lectures and recitations. *Two hours.* Professor PATTERSON.
    Course 8 must be preceded by Course 1 or 2.
10. Alternating Current Phenomena. Lectures and reading. *Two hours.* Professor PATTERSON.
12. Distribution of Electricity. Lectures. *Two hours.* Professor PATTERSON.
    Course 12 must be preceded by Course 1 or 2.
14. Telephone, Telegraph, Fire Alarm, Railway Signal, and Related Apparatus. Laboratory work. *Two hours.* Mr. MOREHOUSE.
    Course 14 must be preceded by Course 13.

NAVAL ARCHITECTURE AND MARINE ENGINEERING

The courses in naval architecture and marine engineering are open to students who have satisfactorily completed three years of the required work in civil, mechanical, or electrical engineering. Courses 1 to 8, inclusive, should be taken, in their fourth year, by students who intend to take the degree of Bachelor of Science in Marine Engineering.

FIRST SEMESTER

1. Naval Architecture. Structural design. Lectures and recitations. *One hour.* Professor SADLER.
2. Naval Architecture. Ship calculations. Lectures and recitations. *Two hours.* Professor SADLER.
3. Naval Architecture. Strength of ships and preliminary design. *Two hours.* Professor SADLER and Mr. BRAGG.
    Course 3 must be preceded or accompanied by Course 2.

5. Naval Architecture. Mould loft and structural drawing. *Two hours.* Professor SADLER and Mr. BRAGG.
6. Naval Architecture. Ship drawing and design. *Three hours.* Professor SADLER and Mr. BRAGG.
8. Marine Engines and Boilers. Lectures and recitations. *Two hours.* Professor SADLER.
10. Marine Engine and Boiler Drawing and Design. *One hour.* Professor SADLER and Mr. BRAGG.

SECOND SEMESTER

1. Naval Architecture. Structural Design. Lectures and recitations. *One hour.* Professor SADLER.
2. Naval Architecture. Ship calculations. Lectures and recitations. *Two hours.* Mr. BRAGG.
4. Naval Architecture. Stability, resistance, and propulsion of ships. *Four hours.* Professor SADLER.
5. Naval Architecture. Mould loft and structural drawing. *Two hours.* Professor SADLER and Mr. BRAGG.
7. Naval Architecture. Ship drawing and design. *Three hours.* Professor SADLER and Mr. BRAGG.
9. Marine Engines and Boilers. Lectures and recitations. Professor SADLER.
11. Marine Engine and Boiler Drawing and Design. *One hour.* Professor SADLER and Mr. BRAGG.

Primarily for Graduates

13. Ship and Engine Specifications. *Two hours.* Professor SADLER.
14. Pumping and Ventilation. *One hour.* Professor SADLER.
15. Advanced Reading. *Three hours.* Professor SADLER.
16. Advanced Drawing. *Five hours.* Professor SADLER and Mr. BRAGG.

Courses 1 to 8 should be taken in the fourth year by students who expect to graduate in marine engineering.

Students wishing to specialize in marine engine and boiler design should elect Courses 6 and 7 as *three hours* each, and Courses 10 and 11 as *one hour* each.

SEQUENCE OF STUDIES

The work for the first two years is the same for all regular students. At the end of the second year the student makes his choice to continue in the civil engineering, the mechanical engineering, the electrical engineering, the chemical engineering, the marine engineering, or the naval architecture course. An order of studies for the several courses for the years following the second is given in the Annual Announcement of the department. To obtain the degree in marine engineering, or in naval architecture, a student in any of the regular courses, except the course in chemical engineering, will omit the requirements for his fourth year, and take, in their place, the courses offered in naval architecture and marine engineering.

There is a limited opportunity for electives in some semesters, and credits obtained in advance at entrance may leave a place for substitutions. After the first semester of the first year the student may take work to the amount of eighteen hours a week, as arranged by the classification committee; but he may wisely, in some cases, take a smaller number of hours, if he can in that way do more thorough work.

*ORDER OF STUDIES FOR FIRST AND SECOND YEARS

First Year

FIRST SEMESTER		SECOND SEMESTER	
Mathematics 1,	4 hours	Mathematics 2,	4 hours
Language,	4 hours	Language,	4 hours
English 1 or Chemistry 2,	4 hours	Chemistry 2 or English 1,	4 hours
Drawing 1 or Shop Work 1 (Wood and Forge)	4 hours	Shop Work 1 (Wood and Forge) or Drawing 1,	4 hours
	16 hours		16 hours

Second Year

FIRST SEMESTER		SECOND SEMESTER	
Mathematics 3,	5 hours	Mathematics 4,	5 hours
Physics 1,	5 hours	Physics 2,	5 hours
Language,	4 hours	Language,	4 hours
Drawing 5, 4 hours or Drawing 4, 2 hours and Physics 3*b*, 2 hours	4 hours	Drawing 4, 2 hours and Physics 3*b*, 2 hours or Drawing 5, 4 hours	4 hours
	18 hours		18 hours

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*This order of studies is prescribed for students entering upon the engineering course after Commencement, 1904. The order of studies for the third and fourth years, and for the second, third, and fourth years of students who entered previous to Commencement, 1904, may be found in the Announcement of the Department of Engineering.

REQUIREMENTS FOR GRADUATION

THE DEGREE OF BACHELOR OF SCIENCE

[For further information in regard to the courses prescribed for graduation, see pages 163 to 178.]

To earn the degree of Bachelor of Science in civil, mechanical, electrical, chemical, or marine engineering, or in naval architecture, the student must secure *one hundred thirty hours of credit* in a prescribed course of study, as given below, and must present a satisfactory *thesis*. The diploma given indicates the line of study pursued. A time limit is not fixed; but four years are usually needed for the completion of the 130 hours of work.

Bachelors of Arts of this University, and graduates of any other reputable college, are excused from some portions of the general requirements, and are recommended for degrees upon completing the remaining requirements. This work can be done in two years, if the candidate has previously made considerable progress in mathematics and science. The culture imparted by classical or other liberal training will be found to have its uses for one engaged in engineering work, and previous discipline of the faculties in exact research enables the professional student to master more easily the requirements of the course. All the time the student can devote to general studies before taking up specialties is well spent.

A choice among the several courses of engineering need not be made before the end of the second year.

An additional year of study, with a proper choice of electives, will enable a student to obtain the degree of Bachelor of Science in another course in engineering.

GENERAL REQUIREMENTS

The *general requirements* are as follows:

In English: Course 1.

In French and German: sixteen hours, to be elected as explained in the Annual Announcement.

In Mathematics: Courses 1, 2, 3, 4.

In Physics: Courses 1, 2.

In Chemistry: Course 2.

In Drawing: Courses 1, 4, 5.

In Shop Practice: Course 1.

In Mechanical Engineering: Course, 2, 4, 7.

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*Students entering after Commencement, 1904, must secure *one hundred forty hours of credit* (six hours of which must be earned in the Summer Session), no thesis being required.

*SPECIAL REQUIREMENTS

The *special requirements* in the several courses are as follows:

1. *In Civil Engineering*

To obtain the recommendation of the Faculty for the degree of Bachelor of Science in Civil Engineering, the student must satisfactorily complete, in addition to the *thesis* and the *general requirements* named above, courses as follows:

In Mathematics: Courses 5, 6.
In Physics: Course 3*c*.
In Mineralogy: Course 1.
In Geology: Course 6.
In Astronomy: Course 4.
In Drawing: Course 14.
In Surveying: Courses 1, 2, 3, 5.
In Civil Engineering: Courses 3, 4, 5, 6, 7, 8, 9, 15.
In Electrical Engineering: Course 1.

In elective studies, taken in the Department of Engineering, or in the Department of Literature, Science, and the Arts: an amount sufficient to secure in all *one hundred thirty hours of credit.*

2. *In Mechanical Engineering*

To obtain the recommendation of the Faculty for the degree of Bachelor of Science in Mechanical Engineering, the student must satisfactorily complete, in addition to the *thesis* and the *general requirements* named above, courses as follows:

In Mathematics: Courses 5, 6.
In Physics: Course 3*c*.
In Metallurgy: Course 1.
In Shop Practice: Courses 1, 1*b*, 3*a*, 3.
In Surveying: Course 4.
In Civil Engineering: Courses 3, 5, 9.
In Mechanical Engineering: Courses 1, 5, 6, 8, 9, 10, 11, 12, 13, 14.
In Electrical Engineering: Course 1.

In elective studies, taken in the Department of Engineering, or in the Department of Literature, Science, and the Arts: an amount sufficient to secure in all *one hundred thirty hours of credit.*

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*The change in the number of hours of credit required for graduation for students entering after Commencement, 1904, will necessitate some revision of the requirements for graduation, particularly in the work of the last two years.

3. *In Electrical Engineering*

To obtain the recommendation of the Faculty for the degree of Bachelor of Science in Electrical Engineering, the student must satisfactorily complete, in addition to the *thesis* and the *general requirements* named above, courses as follows:

In Mathematics: Courses 5, 6.
In Physics: Courses 3*b*, 4, 5, 12.
In Shop Practice: Courses 1, 1*b*, 3*a*, 3.
In Civil Engineering: Courses 3, 5.
In Mechanical Engineering: Courses 5, 6.
In Electrical Engineering: Courses 2, 3, 5, 7, 12.

In elective studies, taken in the Department of Engineering, or in the Department of Literature, Science, and the Arts: an amount sufficient to secure in all *one hundred thirty hours of credit.*

4. *In Chemical Engineering*

To obtain the recommendation of the Faculty for the degree of Bachelor of Science in Chemical Engineering, the student must satisfactorily complete, in addition to the *thesis* and the *general requirements* named above, courses as follows:

In Physics: Course 3*c*.
In Chemistry: Courses 3, 5, 7, 28, 33, 35, 38, 39.
In Metallurgy: Course 1.
In Surveying: Course 4.
In Mechanical Engineering: Course 6.
In Electrical Engineering: Course 1.

In elective studies, taken in the Department of Engineering, or in the Department of Literature, Science, and the Arts: an amount sufficient to secure in all *one hundred thirty hours of credit.*

5. *In Marine Engineering*

To obtain the recommendation of the Faculty for the degree of Bachelor of Science in Marine Engineering, the student must satisfactorily complete, in addition to the *thesis* and the *general requirements* named above, courses as follows:

In Mathematics: Courses 5, 6.
In Physics: Course 3*c*.
In Metallurgy: Course 1.
In Shop Practice: Courses 1, 1*b*, 3*a*, 3.
In Civil Engineering: Courses 3, 5, 9.

In Mechanical Engineering: Courses 1, 5, 6, 9, 13.

In Electrical Engineering: Course 1.

In Naval Architecture and Marine Engineering: Courses 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11.

In elective studies, taken in the Department of Engineering, or in the Department of Literature, Science, and the Arts: an amount sufficient to secure in all *one hundred thirty hours of credit.*

Students who have completed three years of any one of the preceding courses except the chemical and marine courses may change to the course in Marine Engineering by taking the following work.

Fourth Year

FIRST SEMESTER		SECOND SEMESTER	
Civil Engineering 9,	1 hour	Mechanical Engineering 9,	2 hours
Mechanical Engineering 7,	2 hours	Naval Architecture 4,	4 hours
Mechanical Engineering 11,	3 hours	Marine Engines 9,	3 hours
Naval Architecture 1,	2 hours	Naval Architecture 7,	3 hours
Naval Architecture 3,	2 hours	Marine Engines 11,	1 hour
Marine Engines 8,	2 hours		13 hours
Naval Architecture 6,	3 hours	Electives	
Marine Engines 10,	1 hour	Thesis	
	16 hours		

GRADUATE COURSES

THE DEGREE OF MASTER OF SCIENCE

A candidate for the degree of Master of Science in this department must have previously received the engineering degree of Bachelor of Science from this University, or, if graduated elsewhere, must satisfy the Faculty that he possesses equivalent attainments.

He must choose a *major* subject, which shall occupy one-half of his time, from the work given in this department, and two minor subjects, each to occupy one-fourth of his time, to be selected from any work open to engineering students; all of the work, however, is subject to the approval of the Faculty. Study and residence for not less than one year are required. Among the courses described on previous pages the following are arranged primarily for graduates:

In Physics: Courses 7, 10, 16.
In Civil Engineering: Courses 11, 12, 13, 14, 16.
In Mechanical Engineering: Courses 16 to 24, inclusive.
In Electrical Engineering: Course 10.
In Naval Architecture and Marine Engineering: Courses 12, 14, 15, 16.

If a candidate for the degree of Master of Science desires to have his work count toward the degree of Civil Engineer, Mechanical Engineer, Electrical Engineer, Chemical Engineer, Marine Engineer, or Naval Architect, the major subject must be taken in the course in which he took his bachelor's degree, and he must submit a satisfactory thesis before the degree of Engineer will be conferred.

THE DEGREES OF CIVIL ENGINEER, MECHANICAL ENGINEER, ELECTRICAL ENGINEER, CHEMICAL ENGINEER, MARINE ENGINEER, AND NAVAL ARCHITECT

The conditions under which the degree of Engineer may be obtained by graduates of this University in the Department of Engineering are as follows:

1. The candidate must furnish satisfactory evidence that he has pursued further technical studies along the lines of his profession, the equivalent in amount of one year's work in the University. This work need not necessarily be consecutive. It may be done at the University or *in absentia.* In either case a prescribed course of study must be approved in advance by the Faculty. If the candidate resides at the University he can, if he desires, pursue his studies with a view to obtaining the degree of Master of Science on completion of the prescribed course of study.

2. The candidate must have been engaged in professional work in positions of *responsibility* for at least one year since graduation, and must furnish a detailed account of his entire professional career one month before the date of the annual commencement at which he expects to receive the degree.

3. The candidate must prepare a satisfactory thesis on some engineering topic to be presented at the same time as the account of his professional experience, one month before commencement. The subject of the thesis must be approved in advance by the Faculty.

FELLOWSHIP IN GAS ENGINEERING

The Michigan Gas Association continues for the year 1904-1905 the support of the Fellowship in Gas Engineering which it has maintained since 1900-1901. The annual stipend is five hundred dollars. By the terms of the gift the course of study is in charge of the heads of the departments of instruction in chemical engineering and mechanical engineering. The holder of the fellowship for the current year is David Homer Clary, B.S.

FEES AND EXPENSES

The Matriculation Fee and the Annual Fee must be paid in advance. Except by order of the Board of Regents, no portion of these fees can be refunded to students who leave the University during the academic year. The Auditing Board has authority, under certain conditions, to remit the fee for special entrance examinations.

Matriculation Fee.—For Michigan students, *ten dollars;* for all others, *twenty-five dollars.*

Annual Fee.—For Michigan students, *thirty-five dollars;* for all others, *forty-five dollars.* The annual fee required of all graduates who are granted the privilege of pursuing studies for an advanced degree *in absentia,* is *ten dollars.*

Fee for Special Entrance Examination.—A fee of *five dollars* is required for all persons who present themselves for examination for admission at a date later than that announced in the Calendar (see pages 143 and 144).

Diploma Fee.—For all alike, *ten dollars.*

Laboratory Courses.—The required laboratory courses cost approximately as follows: *Shop Practice.*—In the mechanical and electrical engineering courses, *thirty dollars;* in the civil engineering course, *ten dollars. Physical Laboratory.*—A charge of *one dollar* is made for a course requiring one exercise a week during one semester, and at the same rate for the longer courses. *Mechanical Laboratory.*—The charge for each course is *five dollars. Chemical*

Laboratory.—Students who take laboratory courses in chemistry are required to pay for the materials and apparatus consumed by them. The average cost for each course is about *ten dollars.* The fee required for any course has to be paid before the work of the course is begun.

The total amount of fees paid to the University during the whole four years' course, for matriculation, incidental expenses, materials used, and diploma, is, for Michigan students, from $185 to $210; and for others, from $240 to $265, varying more or less according to the student's actual laboratory expenses.

For additional information in regard to expenses, see pages 47 to 48.

Department of Medicine and Surgery

A special Announcement giving further information in regard to this department is published annually. For copies of this Announcement or for other information relating to the department, address Dr. Victor C. Vaughan, Dean of the Department of Medicine and Surgery, Ann Arbor, Michigan.

The Department of Medicine and Surgery, for which provision was made in the legislative act by which the University was organized in 1837, was opened for students in 1850. The college year was lengthened from six to nine months in 1877. The course was lengthened to three years in 1880, and to four years in 1890.

The academic year extends from the Tuesday preceding the last Wednesday in September to the Thursday preceding the last Wednesday in June (September 26, 1905, to June 21, 1906). The lectures continue till early in June. The examinations are then begun, and concluded in time for the Commencement exercises.

For the summer session of this department, see a subsequent chapter.

REQUIREMENTS FOR ADMISSION

Persons who comply with all the requirements named, and are admitted without condition, should be able to complete the medical course, and to graduate, at the end of four years. The additional time necessary to complete the course of study by persons who are permitted to enter with conditions will vary with the extent of the conditions imposed.

Every applicant for admission must present to the Dean of the Faculty a special form of credentials, properly filled out and signed. Blank forms for this purpose are furnished on application to the

Dean. To secure exemption from examination the applicant must present credentials showing that he has completed, in some approved high school, academy, college, or university, all the requirements for admission described below, according to the conditions attached thereto. An applicant who can not present satisfactory credentials, covering all the requirements, must submit to an examination in the subjects not so covered. Certificates from the Board of Regents of the University of the State of New York are accepted in the branches covered by them.

All matriculates who have any intention of practicing medicine in the State of Michigan must present their credentials to the Michigan State Board of Medical Examiners, as well as to the Faculty of the department. The minimum legal requirements for admission to a medical school in this State are defined by statute.

Women are admitted, as to all other departments of the University, on the same condition as men.

No applicant is admitted, even conditionally, unless he be a graduate of an approved high school, or have had a training equivalent to that obtained in such a school.

To meet the requirements for admission without condition, it is expected that the applicant will have had at least two years of collegiate instruction in addition to a high school course.

The subjects required for admission are as follows:

GROUP I.—ENGLISH LANGUAGE.—(*a*) English grammar. (*b*) Composition and rhetoric.

The requirements in Group I are absolute. No student can enter without fully complying with them.

GROUP II.—HISTORY.—(*a*) History of the United States as presented in McLaughlin's *History of the American Nation,* Johnston's *History of the United States,* or an equivalent text. (*b*) General history as presented in Myers's *General History,* or an equivalent text. As a substitute for general history, Greek and Roman history, or English history, is accepted.

The requirements in Group II are absolute. No student can enter without fully complying with them, and no substitutions, except those mentioned, are allowed.

GROUP III.—MATHEMATICS.—(*a*) Algebra.—Fundamental rules, fractions, simple equations, involution and evolution, the calculus of radicals, and quadratic equations, as given in Olney's *Complete School Algebra,* Beman and Smith's *Elements of Algebra,* or an equivalent text. (*b*) Geometry.—Plane geometry as given in Beman and Smith's *New Plane and Solid Geometry,* or an equivalent text. (*c*) Plane trigonometry, as given in Wentworth's *Trigonometry,* or an equivalent text.

The requirements in algebra and geometry are absolute. A student may enter with a condition in trigonometry, but he must then pursue the subject with a class in the Department of Literature, Science, and the Arts two hours a week for one semester. There is no extra charge for this instruction.

GROUP IV.—NATURAL SCIENCES.—(*a*) Physics, as presented in Carhart and Chute's *Elements of Physics*, or an equivalent text.

(*b*) General biology, or botany and zoology, as presented in Sedgwick and Wilson's *General Biology*, or in Spalding's *Introduction to Botany* and Kingsley's *Comparative Zoology*. The text-book work is accepted only when accompanied by laboratory work.

(*c*) Chemistry as presented in Freer's *Elementary Chemistry*, or an equivalent amount of work in Remsen's *Introduction to the Study of Chemistry*.

No applicant will be admitted who receives a condition in more than two of the studies in Group IV. If admitted on condition, he must do extra work, as provided for below.

A student with an entrance condition in physics must take instruction in a class especially provided for such students at an extra expense of five dollars.

A student with an entrance condition in biology will find opportunity for removing this condition by taking the course given in general biology in the Summer Session of this University. The cost for this course in the Summer Session is fifteen dollars for tuition, in addition to the regular laboratory fees. The condition must be removed before the beginning of the student's second year of residence at the University.

A student with an entrance condition in chemistry must remove this condition in one of the following ways: (*a*) By taking a special course provided for such students with an extra fee of five dollars; (*b*) By taking the work in the Summer Session of this University preceding his entrance to the Department of Medicine and Surgery. The cost for this course is fifteen dollars for tuition, and about five dollars for laboratory material.

GROUP V.—MODERN LANGUAGES.—German or French. The applicant must be able to read one of these two languages. Preparation for this will require, for one not born to the language, two years of school work.

A student may be admitted without either German or French; but in case this is permitted, he must pursue the study of one of these two languages for two years in the Department of Literature, Science, and the Arts, and he cannot complete his medical course in less than five years after admission. There is no extra charge for the instruction in German or French.

GROUP VI.—LATIN.—(*a*) Grammar. (*b*) Prose composition. (*c*) Reading: Four books of Caesar's *Gallic War*.

Students may be permitted to enter with a condition in Latin. As elementary Latin is not taught in the University, it will be necessary for a student conditioned in this subject to secure instruction in it at his own cost.

Time of Examination

The examination for admission will be held Saturday and Monday, September 23 and 25, 1905. At this time the Committee on Admission will examine the credentials of those who expect to be exempt from examination in whole or in part.

Before admission to examination every applicant is required to present to the Secretary of the Faculty the Treasurer's receipt for the payment of the matriculation fee and the annual fee. It will, there fore, be necessary for him to apply first to the Secretary of the University at his office in University Hall, register his name as a student in the Department of Medicine and Surgery, and pay his fees to the Treasurer. In case of rejection, the money paid preliminary to examination will be refunded.

ADMISSION TO ADVANCED STANDING

In order to be admitted to advanced standing, a student must have completed not only the didactic courses, *but also the laboratory courses* already taken by the class to which he seeks admission. When, in the judgment of the professor in charge, such a course is equivalent to that given in this department, he may give the student credit for the work done, and thus avoid repetition.

No credit can be given for lecture courses taken in schools unprepared to give the proper laboratory teaching. This applies to the clinical branches as well as to the scientific. For instance, lectures on surgery, even when accompanied by clinical demonstrations, cannot be accepted in lieu of the course given in this department in the third year, which provides for operations by the student on animals.

COURSE OF INSTRUCTION

The regular course of instruction covers four college years of nine months each. The first two years are devoted to the more strictly scientific work which serves as a basis for the technical and clinical studies which follow. The forenoons are given mainly to lectures and recitations, three each day; the afternoons to laboratory drill during the first two years, and to the study of methods of diagnosis and means of treatment during the third and fourth years. Four or five hours a day are employed in laboratory or hospital.

The following brief descriptions show the character and extent of the instruction given in the several branches during the current year, and indicate the order in which the different portions of the course are studied. Fuller details are given in the special Announcement of the department.

CHEMISTRY

1. General Chemistry. Lectures, demonstrations, recitations. Five times a week, first semester, first year. Professor S. L. BIGELOW.
2. Organic Chemistry. Lectures, demonstrations, recitations. Five times a week, second semester, first year. Professor PRESCOTT.
3. Laboratory Work. Afternoons for nine weeks, first year. Dr. DUNLAP.

PHYSICS

For the work in Physics a knowledge of plane trigonometry is indispensable.

1. Mechanics, Sound, and Light. Lectures, demonstrations, recitations. Three times a week, first semester, first year. Professor J. O. REED.
2. Heat and Electricity. Continuation of Course 1. Lectures, demonstrations, recitations. Three times a week, second semester, first year. Professor J. O. REED.

ANATOMY AND HISTOLOGY

1. Osteology. Lectures and demonstrations. Twice a week, first semester, first year. Dr. YUTZY.

1*a*. Anatomy of the Joints. Lectures, demonstrations, recitations. Twice a week, second semester, first year. Professor McMURRICH.

2. General Anatomy. Lectures, demonstrations, recitations. Twice a week, first semester, first year. Professor McMURRICH.
3. General Anatomy. Continuation of Course 2. Lectures, demonstrations, recitations. Twice a week, second semester, first year. Professor McMURRICH.
4. Anatomy of the Nervous System. Lectures and illustrations. Twice a week, first semester, second year. Professor McMURRICH.
5. Practical Anatomy. Laboratory work. Afternoons for nine weeks, first semester, first year. Professor McMURRICH, Dr. YUTZY, Dr. A. H. H. ROTH, and assistants.
6. Practical Anatomy. Continuation of Course 5. Laboratory work. Afternoons for nine weeks, second semester, first year. Professor McMURRICH, Dr. YUTZY, Dr. A. H. H. ROTH, and assistants.

6*a*. Regional and Surgical Anatomy. Lectures and recitations. Second semester, second year. Given by members of the anatomical and the surgical staff.

7. Embryology, Histogenesis, and Histology. Lectures, demonstrations, recitations. Three times a week, first semester, first year. Professor HUBER.

8. Embryology, Histogenesis, and Histology. Continuation of Course 7. Lectures, demonstrations, recitations. Three times a week, second semester, first year. Professor HUBER.

8*a*. Laboratory Work in Histology. Afternoons for nine weeks, first year. Professor HUBER and Dr. DE WITT.

9. Methods of Vertebrate Histology. Laboratory work and reading. Professor HUBER and Dr. DE WITT.

Course 9 is open only to students who have completed Courses 7, 8, and 8*a*.

10. Research in Vertebrate Histology. Professor HUBER.

Course 10 is open only to students who receive special permission.

11. Microscopic Anatomy of the Central and the Peripheral Nervous System and Special Sense Organs. Laboratory work and reading. Professors MCMURRICH and HUBER.

Course 11 is open only to students who receive special permission.

12. Human and Comparative Anatomy. Laboratory work. Professor MCMURRICH and assistants.

Course 12 is open only to students who receive special permission.

HYGIENE, BACTERIOLOGY, AND PHYSIOLOGICAL CHEMISTRY

1. General Hygiene. Lectures. Three times a week, second semester, second year. Professor VAUGHAN.

2. General Bacteriology. Lectures and quizzes. Three times a week, first semester, second year. Professor NOVY.

3. Practical Bacteriology. Laboratory work and recitations. Afternoons for nine weeks, second year. Professor NOVY, Mr. LEVY, and Mr. S. F. EDWARDS.

4. Advanced Bacteriology. Professor NOVY.

Course 4 must be preceded by Course 3. It is an optional course, and is open only to a limited number of students.

4*a*. Advanced Bacteriology. Continuation of Course 4. Professor NOVY.

5. Water Analysis. Chemical, microscopical, and bacteriological study of drinking water. Three times a week, either semester, second year. Dr. EASTWOOD.

6. Food Analysis. Chemical and bacteriological examination of food. Professor VAUGHAN and Dr. J. F. MUNSON.

Course 6 is open only to students specially qualified for the work.

7. Research Work on Hygienic Problems. Professors VAUGHAN and NOVY.

Course 7 is open only to students specially qualified for the work.

8. Physiological Chemistry. Lectures. Three times a week, first semester, second year. Professor VAUGHAN.
9. Physiological Chemistry. Laboratory work and recitations. Afternoons for nine weeks, second year. Professor NOVY and Mr. NIMS.
10. Advanced Physiological Chemistry. Afternoons for nine weeks. Professor NOVY and Mr. NIMS.

Course 10 is an optional course.

11. The Administration of Health Laws. Special lectures. Dr. BAKER.
12. The Collection and Interpretation of Vital Statistics. Special lectures. Dr. WILBUR.

PHYSIOLOGY

1. Physiology. Lectures, demonstrations, recitations. Five times a week, first semester, second year. Professor LOMBARD.
2. Physiology. Continuation of Course 1. Lectures, demonstrations, recitations. Three times a week, second semester, second year. Professor LOMBARD.
3. Practical Physiology. Laboratory work. Afternoons for nine weeks, second year. Professor LOMBARD.
4. Research Work in Physiology. Professor LOMBARD.

Course 4 is open only to students who have completed Courses 1, 2, and 3, or an equivalent amount of work.

PATHOLOGY

1. General Pathology. Text-book: Ziegler's *General Pathology*. Collateral reading. Four times a week, second semester, second year. Professor WARTHIN.
2. General Pathology. Laboratory work. Afternoons for nine weeks, third year. Professor WARTHIN.

2a. Journal Club. Third Year. Professor WARTHIN.

Course *2a* is elective, and is open only to students who receive special permission.

3. Gross Pathology. Gross pathological anatomy. Twice a week, fourth year, in addition to time taken for clinical autopsies. Professor WARTHIN.

3a. Gynæcological Pathology. Elective. Once a week, second semester, fourth year. Professor WARTHIN.

4. Graduate Courses. Professor WARTHIN.

PHARMACOLOGY AND THERAPEUTICS

1. Pharmacology. Lectures, demonstrations, recitations. Four times a week, first semester, third year. Professor CUSHNY and Dr. EDMUNDS.

2. Pharmacology. Lectures, demonstrations, recitations. Four times a week, second semester, third year. Professor CUSHNY and Dr. EDMUNDS.
3. Preparation of Medicine and Prescription Writing. Once a week, both semesters, third year. Dr. E. M. HOUGHTON and Dr. EDMUNDS.
4. Experimental Pharmacology. Second semester, second year. Professor CUSHNY and Dr. EDMUNDS.
5. Research Work in Pharmacology. Third and fourth years. Professor CUSHNY.

SURGERY

1. Principles of Surgery. Lectures, recitations, and text-book. Twice a week, third year. Professor NANCREDE and Dr GEORG.
2. Diagnostic Clinic. Once a week, second semester, third year. Professor NANCREDE.
3. Demonstration Course in Operative Surgery. Third year. Clinical Professor DARLING and assistants.
4. Special Surgery. Lectures and recitations. Three times a week, fourth year. Professor NANCREDE, Clinical Professor DARLING, Dr. LOREE, and Dr. WALDRON.
5. Surgical Clinics. Fourth year. Professor NANCREDE, Clinical Professor DARLING, and assistants.
6. Ward Classes. Fourth year. Clinical Professor DARLING and Dr. LOREE.

INTERNAL MEDICINE AND DISEASES OF CHILDREN

1. Lectures and recitations. Three times a week, third year. Professor DOCK and Dr. COWIE.
2. Diagnostic Clinic. Once a week, third year. Professor DOCK.
3. Auscultation and Percussion. Practical work and reading. Third year. Dr. MORRIS.
4. Ward Class. Visits to the medical wards of the University Hospital. Fourth year. Professor DOCK and Dr. MORRIS.
5. Case Taking. Patients are assigned to members of the class, who take the history, work out the present condition, and write the results, with differential diagnosis, prognosis, and plan of treatment. Fourth year. Professor DOCK and assistants.
6. Clinical Lecture and Conference. Twice a week, fourth year. Professor DOCK.
7. Recitations on Diseases not often seen in the Clinic. Once a week, fourth year. Dr. MORRIS.
8. Diseases of Children. Lectures, recitations, and clinical instruction. Fourth year. Professor DOCK.

DISEASES OF THE MIND AND NERVOUS SYSTEM AND ELECTROTHERAPEUTICS

1. Electrotherapeutics. Laboratory work, required of all students. Afternoons for nine weeks, third year. Professor **Herdman** and Mr. **Willey**.
2. Demonstration Course. Four times a week, for nine weeks, third year. Professor **Herdman** and Dr. **Solis**.
3. Clinical Instruction. Once a week, fourth year. Professor **Herdman** and Dr. **Klingmann**.
4. Didactic lectures, quizzes, and clinical instruction. Fourth year. Professor **Herdman** and assistants.
5. Neural Pathology. Once a week, fourth year. Dr. **Klingmann**. Course 5 is a special, optional laboratory course.
6. Physiological Psychology. Assistant Professor **Pillsbury**. Course 6 is an optional course.

OPHTHALMOLOGY

1. Demonstration Course. Twice a week, for six weeks, third year. Clinical Professor **Parker** and Dr. **Slocum**.
2. Lectures and Recitations. Twice a week, fourth year. Clinical Professor **Parker**.

OTOLOGY, RHINOLOGY, AND LARYNGOLOGY

1. Demonstration Course. Twice a week, for six weeks, third year. Clinical Professor **Canfield**.
2. Lectures and Recitations. Twice a week, fourth year. Clinical Professor **Canfield**.

OBSTETRICS AND GYNAECOLOGY

1. Theory of Obstetrics. Lectures, recitations, clinical conferences. Four times a week, second semester, third year. Professor **Peterson** and assistants.
2. Demonstration Course in Obstetrics. Six times a week, for six weeks, third year. Dr. **Patton**.
3. Practical Obstetrics. Small sections. Fourth year. Professor **Peterson** and assistants.
4. Gynæcology. Lectures, recitations, diagnostic and operative clinics. Three times a week, fourth year. Professor **Peterson**.

DERMATOLOGY AND SYPHILOLOGY

1. Lectures, recitations, clinics, and clinical conferences. Twice a week, fourth year. Dr. W. F. **Breakey** and Dr. J. F. **Breakey**.

MEDICAL JURISPRUDENCE AND TOXICOLOGY

1. Lectures from the legal standpoint. Second semester, fourth year. Professor HUTCHINS.
2. Lectures from the medical standpoint. Second semester, fourth year. Professor VAUGHAN.

BEDSIDE AND DISPENSARY INSTRUCTION

Senior students are given charge of patients, and are required to make diagnoses, prescribe, dress wounds, and perform minor operations under the direction of the professor in charge. A lying-in ward furnishes obstetrical cases, which are attended by the senior students in rotation.

EXAMINATIONS

Examinations (written, oral, or both written and oral) are held at the close of each course or semester. Students *"conditioned"* can not apply for another examination in the same subject until the close of the next course or semester, except that a student conditioned at the close of the college year may ask for another examination in the first two weeks of the following year. Students reported *"not passed"* are required to take the course over again before applying for re-examination. Candidates for graduation, who fail in an examination, are allowed a re-examination before the entire Faculty. No student is recommended for graduation until he has completed all his required work and has passed all his examinations.

Further rules concerning examinations are given in the special Announcement of the department.

INSTRUCTION FOR WOMEN

The course of instruction for women is in all respects equal to that for men. Practical anatomy is pursued by the two sexes in separate rooms, but in the lectures, in public clinics, in the several laboratories, and in various class exercises, it is found that both sexes may attend with propriety at the same time.

COMBINED LITERARY AND MEDICAL COURSE

With a few exceptions, all the subjects of the first two years of the preceding schedule are taught in the elective courses open to students in the Department of Literature, Science, and the Arts. Students in that department who intend also to study medicine, may, therefore, be able to shorten their total period of study and residence at the University by from a year to a year and a half or two years, if they comply with the conditions on which registration in both departments at the same time is permitted (see page 124), and also pursue, as literary students, courses that cover the subjects required in the first two years of the medical curriculum. The precise amount of time gained will depend upon the amount of required medical work the student completes.

REQUIREMENTS FOR GRADUATION

To be admitted to the degree of Doctor of Medicine, a student must be twenty-one years of age, and possess a good moral character. He must have completed the required courses in laboratory work, and have passed satisfactory examinations on all the required studies included in the full course of instruction. He must have pursued the study of medicine for a period of four years and have attended four full courses of medical lectures, the last two of which must have been in this department.

Graduates of other reputable medical colleges, wishing to take a degree in this school, must regularly matriculate and do all work required in this school and not required in the school that has granted the diploma already held. The shortest term of residence for such graduates is one year. Graduates of other reputable medical schools may, however, without becoming candidates for a degree, pursue any of the graduate courses on the conditions stated below.

GRADUATE COURSES

Graduates of this department of the University, or of other medical schools, are admitted to any one or more of the regular courses of the curriculum on giving evidence of their ability to profit by the instruction given. Advanced courses, beyond the regular curriculum, are also arranged in several of the subjects taught. Graduate students are required to pay for each course the sum of ten dollars in addition to the ordinary laboratory expenses of the course, which vary with the character of the work.

The nature of the work arranged for graduate students in some of the branches of instruction is shown by the following descriptive outline:—

Hygiene and Bacteriology.—(*a*) A course in advanced bacteriological study, such as a student who has already completed the required courses in bacteriology may elect. (*b*) A course arranged especially for health officers, and including the chemical and bacteriological examination of food, water, soil, and air. (*c*) A course of laboratory instruction in bacteriology, extending through four weeks, arranged for health officers and physicians. (*d*) Provision is also made for students qualified to undertake work in research.

Electrotherapeutics.—(*a*) A course covering the subjects of electrolysis, phoresis, and electric diagnosis, the management of continuous, induced, and high tension currents, and the use of Roentgen rays and ultra-violet light. (*b*) A study of the action and technique of useful appliances designed for using electricity as an aid to diagnosis or therapy in any branch of medicine and surgery.

Nervous Diseases.—Courses in neural pathology and in diagnosis of the diseases of the mind and nervous system are open to all graduates of medical colleges in good standing who may wish to avail themselves of the opportunities for instruction here offered.

Pathology.—A systematic course in pathological histology is open to graduates, as are also special courses in the pathological histology of organs, tumors, blood, etc. Especial attention is given to graduate instruction in gynæcological pathology. Persons wishing to take the latter courses must have had the necessary preliminary training. Graduate students are received at any time, but are advised to take the courses offered in the Summer Session, when possible.

Physiology.—(*a*) A course in physiological methods, embracing the use of all the more ordinary forms of apparatus employed to record the movements of the animal body. The work is done in the first instance upon frogs, dogs, etc., and the experience thus gained is later employed in testing the reactions of the human body. The course is varied to meet the needs of the student, and is intended as an introduction to the methods employed in original investigation. (*b*) For those who have had sufficient training in laboratory methods, the apparatus and facilities of the laboratory are offered for the investigation of special problems.

Pharmacology.—A course in experimental pharmacology is open to graduates in medicine, and every facility is afforded them for investigation along special lines.

Chemistry.—Graduates may select work in any of the courses provided in the several departments of the University. The courses in analytical and organic chemistry are described on pages 105 to 111. An elective course in synthetic organic chemistry, given by Professor GOMBERG, is especially valuable to students of medicine. Special studies for individual purposes may be undertaken. Opportunity for research is given. The chemical library is supplied with the extensive repositories of science required in research, and with a wide range of literature of applied chemistry. In any part of the laboratory graduates may select any work they are prepared to pursue.

Anatomy and Histology.—(*a*) A special course in the anatomy of the nervous system. (*b*) The investigation of special problems of anatomy. (*c*) The thorough anatomical study of regions of special surgical importance. (*d*) A course in histological technique, including the methods of preparing, staining, and sectioning tissues. The course is designed for those desiring to fit themselves for histological research or for work in pathological histology. (*e*) A course on the microscopic anatomy of the eye and ear and the central nervous system. (*f*) Original investigation in microscopic anatomy for such as are capable of undertaking the work.

FACILITIES FOR INSTRUCTION

There are ample collections of plates, photographs, models, specimens, preparations, apparatus, and instruments for illustrating the different studies embraced in the course. Additions to these collections are made from time to time, so that the members of the Faculty are able to adopt every new method of illustration, to exhibit to the classes each year all important improvements in the way of instruments and apparatus, and to show their application in the practice of medicine and surgery.

The following paragraphs may serve to indicate the extent of some of these collections and the character of the work done in the several laboratories. For further information in regard to the University museums, laboratories, libraries, and gymnasiums, see pages 28 to 42.

MUSEUM OF ANATOMY

The museums of the late Professors FORD and SAGER, the result of many years' labor in collecting and preparing material intended to aid directly in teaching, are now the property of the University. The illustrative material is constantly increasing in amount by the additions of preparations from many sources, as opportunity permits. The museum contains a valuable collection of bones illustrating healthy as well as diseased conditions, and the structure and development of the various portions of the skeleton; preparations illustrating both the normal structure of the anomalies of the nervous, vascular, and muscular systems, and of the viscera; sections through various portions of the body; and numerous models, among which a series of the Auzoux and His-Steger anatomical models, Broesike's models of the joints, and the Ziegler embryological models may be especially mentioned.

The specimens and preparations are freely available for study by the students, and are largely used in the daily work of the class room, thus forming a very valuable part of the teaching facilities of the department.

ANATOMICAL LABORATORY

The anatomical laboratory is in the new medical building. It comprises four large, well-lighted, and well-ventilated dissecting rooms, one of which is for the use of women students exclusively. In addition, there is a large neurological laboratory; and there are also special rooms for research work, an osteological storeroom, and a study room. Suitable methods are employed in the injection and preservation of the anatomical material, which is stored in a refrigerating room, maintained below the freezing point by means of a carbon-dioxide refrigerating system.

The Anatomical Law of Michigan furnishes, without embarrassment, an ample supply of material for the purpose of practical anatomy. During his course each student is obliged to dissect thoroughly and carefully every part of the body.

MUSEUM OF MATERIA MEDICA

The museum of materia medica consists of a fairly complete collection of the crude substances used in medicine, along with their principal preparations and active principles. In the arrangement of the drugs into groups convenient for study, importance is attached not to their origin but to their action. The museum is also provided with several works of reference for the use of the students, and with a number of graphic registrations of the action of drugs It is open to students of the junior class at such hours as they arrange with the instructor.

CHEMICAL LABORATORY

(See also page 36.)

The chemical laboratory provides thorough instruction and suitable appliances for the practical study of all branches of medical chemistry. The laboratory practice, in the courses *required for graduation,* is directed by daily drill in the class-room, the classes being limited in number. At the close of the course the student is held to an examination. Elective courses and work in research are provided in all branches of chemistry, pure and applied.

ELECTROTHERAPEUTICAL LABORATORY

In the laboratory courses students are given a manual training in the generation, control, and application of electricity in all of its forms that have been found useful to the physician or surgeon. This requires the study of (*a*) the direct or galvanic current as it is obtained from primary batteries, secondary batteries, or dynamos; (*b*) the induced currents as generated by small induction coils, sinusoidal machines, alternating dynamos, or the high-tension apparatus; (*c*) the static machine; (*d*) the various forms of apparatus for the production of magnetic fields; and (*e*) the relations of the various electric modalities to physiological action. The student is also taught the methods of generating X-rays and ultra-violet light, and of employing them in diagnosis and therapeutics. The practical application of the knowledge obtained in the laboratory forms a part of the demonstration course given at the University Hospital, where a full line of the most effective electrical appliances, many of them unique in design, has been installed for this purpose.

PHYSIOLOGICAL LABORATORY

The apartments provided for the physiological laboratory offer excellent facilities for practical work, whether of class instruction or of original investigation. A large and well-lighted room is appropriated chiefly to the use of undergraduate students, who perform under the direction of instructors most of the fundamental physiological experiments. The subjects commonly embraced in the practical course relate to the physiology of muscle and nerve, reflex action, circulation, respiration, and digestion. Smaller rooms are devoted to advanced work and original investigation. The laboratory has a good supply of apparatus, tools, etc., and is open daily for physiological experiment and research.

HISTOLOGICAL LABORATORY

The histological laboratory is on the second floor of the new medical building. It provides facilities both for elementary and for advanced work in histology and histogenesis. There is a large room, accommodating forty-five students, for the elementary work in histology, and a smaller room, accommodating twenty students, for the elementary work in vertebrate embryology, together with storage rooms, a room in which a reference library is shelved, and private rooms for the use of the professor in charge and his staff. Suitable provision is made for students and graduates who desire to engage in the work of research. The laboratory equipment includes the apparatus and instruments needed for conducting the elementary work in histology and embryology, and for special research. Every encouragement is given students and other persons of sufficient preliminary training to undertake the investigation of special problems.

PHARMACOLOGICAL LABORATORY

The pharmacological laboratory is on the second floor of the medical building, and consists of two divisions, one for chemical, the other for experimental, pharmacology. Each division is supplied with apparatus and materials for original work in its branch of research, and any student or graduate receives every encouragement in the prosecution of such work. Among the apparatus recently provided may be mentioned Runne's kymographion with endless paper, two sets of revolving drums, artificial respiration apparatus driven by an electric motor, time markers and signals (electric and clock-work), batteries and secondary coils, centrifugal and "shaker' apparatus, balances, combustion furnaces, etc.

PATHOLOGICAL LABORATORY

The first floor on the east side of the new medical building and rooms in the basement are occupied by the pathological laboratory. Increased facilities are now afforded for graduate work and for work in research. A special room is also assigned to work in gynæcological pathology.

The laboratory is supplied with microscopes, microtomes, paraffin ovens, and the other apparatus necessary in the study of pathologic histology. Each student is furnished with a locker containing a microscope with high and low powers, and is assigned to a table containing the necessary stains and reagents for practical work. These are furnished by the laboratory.

The supply of material for the study of pathologic histology is the result of collections made in the pathological institutes of Vienna and Dresden, and embraces almost every known pathologic condition. This collection gives ample material for the regular courses, and, in addition, offers special opportunities to the advanced student who may wish to pursue studies in certain lines of special pathology, as the pathology of the nervous system, genito-urinary tract, skin, etc. In addition, an abundant supply of fresh material comes from the clinics of the University Hospital, and this is utilized to the fullest extent in the teaching both of gross and of microscopical pathology. The laboratory is fitted with a Bausch and Lomb carbonic acid freezing microtome for use in the making of quick diagnoses and in the preparation of fresh material for class study.

The laboratory contains a set of pathological models and the nucleus of a pathological museum which already contains many rare and valuable specimens. These are utilized for teaching purposes as far as possible.

HYGIENIC LABORATORY

The hygienic laboratory, established by a special appropriation of the legislature in 1887, and opened for work in January, 1889, is now in more commodious quarters in the new medical building. The facilities for original research have been enlarged, and from twenty to thirty students in research can be accommodated at once. Special rooms have been fitted up for the chemical, microscopical, and bacteriological study of foods and drinks, and for the prosecution of investigations in the chemistry and action of bacterial and other toxins. With the large incubating tanks now in use, it is possible to obtain the cellular substance of bacteria in large amounts.

PASTEUR INSTITUTE

The Pasteur Institute was established as a department of the hygienic laboratory in April, 1903. During the years 1903 and 1904 fifty-two cases of hydrophobia were treated at this institute. Residents of Michigan are treated without charge, but they must provide their own room and board. Persons from other states are charged one hundred dollars each for treatment. This institute gives opportunity for all the medical students to become practically familiar with the procedures necessary in the treatment of rabies.

BACTERIOLOGICAL LABORATORY

The west half of the second floor of the new medical building, containing about 7,000 square feet of floor space, is devoted to work in bacteriology. The two main laboratories contain seventy-eight desks, used by beginners and by advanced students. All the material required for the work is supplied, practically at cost, from a well-stocked dispensing room. Four rooms are devoted to the research work of the professor in charge, his assistants, and others qualified to carry on special studies. An incubating room, maintained at a constant temperature, is provided with individual drawers for the use of students. A similar room is reserved for the work in research. A cold room, including a spacious refrigerator, is cooled by means of a liquid-carbonic-acid plant in such a way that the refrigeration can be kept at, or below, the freezing point, while the temperature of the room itself is maintained at about 60° F. A special compartment of 1,000 cubic feet capacity is reserved for experimental room disinfection. Provision is made for operative work on animals, cremation of infected material, sterilization of cages, etc. The well-lighted ground floor contains the store rooms and animal rooms and, in addition, a large room for micro-photography. Gas, water, steam, and compressed air are supplied to the hoods in every work room. The laboratory is equipped with apparatus and instruments of the best make.

LABORATORY OF PHYSIOLOGICAL CHEMISTRY

This laboratory is in the west half of the third floor of the new medical building, and occupies about the same floor space as the bacteriological laboratory above described. The two rooms for the elementary and the advanced work are provided with sixty desks. An adjoining room is equipped with balances and microscopes. A preparation room contains, among other things, a distilling plant from which the water is taken in pipes to different parts of the building. Special rooms are provided for the instructor and for research. There are also well-equipped rooms for combustions, for optical work, and for gas analysis. In every room there are spacious hoods with fittings for steam and compressed air, in addition to gas and water. By an elaborate system of fan ventilation, the air in the laboratory is renewed every fifteen minutes. A small lecture room is in direct connection with the laboratory.

MUSEUM OF NATURAL HISTORY AND LIBRARY

Students in medicine have access to the botanical, zoological, and geological cabinets of the University, estimated to contain 255,000 specimens. The Medical Library contains 13,139 volumes, and 310 pamphlets, exclusive of about 7,000 volumes treating of chemistry, pharmacy, and allied subjects of importance to medical students, included in the General Library, which contains 144,584 volumes, and is open to all students. A complete catalogue, arranged both by authors and by subjects, is accessible to readers. The leading medical periodicals of this country and of Europe, 227 in number, are taken and kept on file.

THE UNIVERSITY HOSPITAL

The University Hospital has sufficient capacity to accommodate a large number of patients, is thoroughly equipped, and is in the immediate charge of competent internes and an experienced matron. It is under the direction of the Faculty, who attend regularly upon the patients (each upon such cases as may come within his special department) and give clinical instruction in the wards to senior students. In connection with the hospital there are two amphitheatres where clinics are regularly held every day during the college year, for medical, surgical, gynæcological, ophthalmological, neurological, dermatological, and venereal cases, at which time examinations are made, prescriptions given, and surgical operations performed in the presence of the class.

It is the aim of the Faculty to make instruction in clinical medicine systematic and thorough, and this they are enabled to do by an abundance of interesting cases which present themselves. The number of patients treated and operated upon in the hospital each year is more than 2,000. Each student, therefore, may see, during his two clinical years, more than 4,000 patients, many of whom present more than one abnormality. Patients are utilized for teaching purposes more thoroughly than can be done in many hospitals. The University Hospital exists for the purpose of affording clinical material and every patient is utilized, but this does not detract in any manner from the benefit which the patient may receive. Students are required to take the history and keep a record of patients, and, under proper supervision, are afforded an opportunity of personally examining the patients. Senior students are required to dress wounds and give other detailed attention to patients assigned them. Stress is laid upon the value of ward and bedside instruction. Several rooms in the hospital are furnished with laboratory appliances, and in these the student is required to make practical application of the knowledge which he has previously acquired in the scientific laboratories.

The hospital includes a lying-in ward in which senior students are given an opportunity to attend cases of labor, and become familiar with the duties of the lying-in room, under the immediate direction of the professor of obstetrics and his assistants.

For the treatment of diseases of the nervous system the hospital is furnished with apparatus for generating all kinds of electric currents. Attendants especially skilled in the application of electricity and massage are put in charge of such cases.

A large portion of the cases admitted to the hospital are from a distance, and are of more than common interest, including many cases of chronic diseases of the lungs, the heart, and the nervous system.

Under the present organization, patients are much better accommodated, and clinical instruction is rendered more systematic and efficient than was formerly possible. There is an isolated building in which patients with contagious diseases are treated. The expenses to patients are only for their board, for unusual appliances or special nursing, and for medicines, the services of the Faculty being rendered gratuitously to those made available for clinical instruction.

Patients who desire to enter the hospital are requested to write to Mr. Eugene S. Gilmore, Superintendent of the University Hospital, Ann Arbor, Mich., to ascertain if there is room for their accommodation, and to obtain a circular giving more fully the rules governing admission.

Training School for Nurses.—In connection with the hospital a training school for nurses has been established under the charge of a competent and experienced matron. The term of study and service extends through three years, at the expiration of which time those who have proved themselves worthy are granted a certificate of graduation. For further information in regard to the school, application may be made to the Superintendent of the hospital.

Psychopathic Ward.—In 1901, by action of the State Legislature provision was made for the addition to the University Hospital of a ward especially equipped for the care of a limited number of acute cases of insanity. This was done with the view of furnishing opportunities for a more thorough study of the conditions attending insanity in its incipient stages, and with the hope that there might result the discovery of causes at present unknown, and the development of methods of treatment that might increase the number of cures.

THE NEW MEDICAL BUILDING

The new medical building, completed in 1903, measures 175 by 145 feet, with an interior court, measuring 75 by 45 feet, and has a high basement and three upper stories. It provides accommodation for the departments of hygiene, bacteriology, physiological chemistry, pathology, anatomy, histology, and embryology. It contains, further, two large amphitheatres, two lecture rooms, a faculty room, and the offices of the Dean and the Secretary.

TEXT-BOOKS AND BOOKS OF REFERENCE

Lists of text-books and books of reference recommended are given in the special Announcement of the department. The student who begins a course of reading without an instructor is advised to devote the most of his time for the first year to the elementary branches, anatomy, histology and embryology, general and medical chemistry, and physics.

FEES AND EXPENSES

The Matriculation Fee and the Annual Fee must be paid in advance, and no student can enter upon his work until after such payment. Except by order of the Board of Regents, no portion of these fees can be refunded to students who leave the University during the academic year.

Matriculation Fee.—For Michigan students, *ten dollars;* for all others, *twenty-five dollars.*

Annual Fee.—For Michigan students, *thirty-five dollars;* for all others, *forty-five dollars.*

Diploma Fee.—For all alike, *ten dollars.*

Laboratory and Demonstration Courses.—The required laboratory and demonstration courses cost approximately as follows:

Anatomy	$20 00
Chemistry	15 00
Bacteriology	15 00
Physiological Chemistry	15 00
Histology	7 00
Electrotherapeutics	8 00
Pathology	10 00
Operative Surgery	10 00
Demonstration Course in Medicine	10 00
" " " Obstetrics	10 00
" " " Nervous Diseases	10 00
Demonstration Courses in Ophthalmology, Otology, Rhinology, and Laryngology	10 00

A deposit of the amount indicated in each case is required before the work of the course is begun.

Graduate Courses.—A fee of *ten dollars* is charged to graduate students for each course taken, in addition to the ordinary laboratory expenses of the course.

The total amount of fees paid to the University during the whole four years' course for matriculation, incidental expenses, materials used, and diploma is, for Michigan students, about $300.00; and for all others, about $355.00, varying a little with the students' actual laboratory expenses.

For additional information in regard to expenses, see pages 47 to 48.

Department of Law

A special Announcement giving further information in regard to this department is published annually. For copies of this Announcement, or for other information relating to the department, address Professor H. B. Hutchins, Dean of the Department of Law, Ann Arbor, Michigan.

The Department of Law was opened in 1859. Its growth and influence have been marked. From the first it has been the constant endeavor of the Faculty to furnish facilities for legal training equal to any attainable elsewhere in the country. And no effort will be spared to make the department in the future deserving of continued and increasing prosperity. The Faculty is composed of both resident and non-resident members. The resident members, fifteen in number, devote themselves regularly and continuously to the work of instruction. In addition to the instruction by the regular staff, which covers all the fundamental and ordinary branches of the law, provision is made for several courses by specialists upon such subjects as international law, Roman law, comparative constitutional law, constitutional history, admiralty law, medical jurisprudence, insurance, mining law, irrigation law, patent law, copyright law, statute law, bankruptcy, neurology, electrology, and railway injuries. There are fifteen special lecturers, and each of the special courses consists of from six to fifteen lectures.

The department occupies a new and spacious building, devoted exclusively to its use. It is ample in its accommodations, and admirably adapted for law-school work.

The academic year extends from the Tuesday preceding the last Wednesday in September to the Thursday preceding the last Wednesday in June (September 26, 1905, to June 21, 1906).

For the summer session of the department, see a subsequent chapter.

DIRECTIONS TO APPLICANTS FOR ADMISSION

Before admission to the department, or to the entrance examination, the applicant is required to present to the Dean the Treasurer's receipt for payment of the matriculation fee and the annual fee. It is essential, therefore, that he apply first to the Secretary of the University at his office in University Hall, register his name as a student in the Department of Law, and pay his fees to the Treasurer. He is then entitled to apply for admission. In case of rejection, the money paid preliminary to the examination is refunded by the Treasurer.

All applicants for admission to any class are expected to present themselves at the opening of the academic year. Students who enter at a later date not only lose much of the benefit of the instruction, but seriously embarrass the administration of the department. No excuse, therefore, unless of the most serious character, is accepted for delay in entering, and in no event are students admitted to regular standing in any class who present themselves after the first of November.

REQUIREMENTS FOR ADMISSION

[For admission to advanced standing, see page 210.]
[For admission of special students, see page 211.]
[For admission to the graduate class, see page 211.]

Applicants for admission to the first-year class must be at least eighteen years of age; to the second-year class, nineteen; and to the third-year class, twenty. Applicants for admission to the graduate class must be at least twenty-one years of age. Special students must be at least twenty-one years of age.

ADMISSION WITHOUT EXAMINATION

Graduates or matriculates of universities or colleges, and students who have completed an academical or high school course approved by the Faculty, are admitted to the department without examination as to preliminary requirements, and may become candidates for a degree. In order to be entitled to this privilege, however, the applicant should present to the Dean of the department evidence that he comes within some one of the classes named, which should be in the form of a diploma or certificate, or a certified copy thereof.

ADMISSION UPON EXAMINATION

All other applicants, if candidates for a degree, must pass satisfactory examinations in the following subjects:*

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*While specific requirements are here enumerated, it should be understood that an applicant will be received as a candidate for a degree who passes a satisfactory examination in subjects equivalent to a high school course of four years, even though some of the subjects may not be contained in the enumeration here given.

Civil Government.—Fiske's *Civil Government,* Hinsdale's *American Government* (Parts I and II, especially the large print), or an equivalent.

Composition and Rhetoric.—The applicant will be required to write an essay of not less than two pages (foolscap), upon a familiar topic; it must be correct in spelling, punctuation, capitalizing, grammar, and paragraphing. The topics for the essays from which the applicant may make a selection will be given at the time of the examination.

English Grammar.—Selections for analysis and parsing will be set, arranged to test the applicant's knowledge of the leading facts of English grammar.

English Literature.—Stopford A. Brooke's *English Literature,* or an equivalent, may be used for an outline of the subject.

Foreign Language.—The requirement in foreign language may be satisfied by two years of study in any foreign language, or by one year in each of two foreign languages.

History.—The requirement in history may be met by the study of (1) Myers's *General History,* or an equivalent; (2) McLaughlin's *History of the American Nation,* Johnston's *History of the United States,* or an equivalent work on this branch of the subject; and (3) Ransome's *History of England,* Gardiner's *Students' History of England,* or any equivalent work on English history.

Mathematics.—ALGEBRA.—Through quadratic equations.

PLANE GEOMETRY.—As given in Olney's *New Elementary Geometry,* Beman and Smith's *Plane and Solid Geometry,* or an equivalent in other authors.

Sciences.—Any *two* of the following sciences as ordinarily studied in a high school during a course of four years: PHYSICS, BOTANY, CHEMISTRY, PHYSICAL GEOGRAPHY, ASTRONOMY, GEOLOGY.

Preliminary Collegiate Training

The demand for thorough equipment in the lawyer is constantly becoming more imperative. Every student intending to enter the profession of the law is strongly urged, therefore, before entering upon his legal studies to take a thorough collegiate course. In this connection, the combined course described on page 124 is especially commended as affording the most desirable preparation for the practice of the law.

Prior Reading in Law

The student is frequently solicitous as to whether or not it is desirable for him to acquire some general knowledge of legal principles before beginning his course in a school of law. It is difficult to lay down directions upon the subject that can be applied in all cases. The Faculty, however, is of the opinion that, for the first year at least, more positive advancement will be made by students who, before entering the department, have read some of the more elementary works. But the Faculty understands very well the difficulty that most students, not in a law school, experience in giving proper direction to their reading at the beginning; and therefore does not make the prior reading of law a condition of admission to the first-year class.

ADMISSION TO ADVANCED STANDING

Students properly qualified may be admitted to advanced standing upon examination. The examinations for advanced standing in the class named are open to persons who have the general educational qualifications required for admission to the department, as indicated below:

1. To the second-year class:—

(*a*) Attorneys-at-law in good and regular standing from any state in which an examination for admission to the bar is required.

(*b*) Persons who have satisfactorily completed one year's work in another law school of approved standing, and who bring a proper certificate thereof.

(*c*) Persons who actually and in good faith, and as their principal occupation, have pursued, for a period of not less than fifteen months, in the office or under the guidance of some reputable practitioner or instructor, a course of study fairly equivalent to that pursued in this department by students of the first year, and who present to the Dean of the department the affidavit of such practitioner or instructor showing with particularity that this requirement has been met.

2. For admission to the third-year class:—

(*a*) Persons who have received, in due course, the degree of Bachelor of Laws from an approved law school maintaining an undergraduate course of not less than two years of nine months each.

(*b*) Persons who have satisfactorily completed two years' work in an approved law school maintaining an undergraduate course of three years of nine months each, and who bring a proper certificate thereof.

(*c*) Persons who, since January 1, 1898, have creditably passed the examination for admission to the bar given by the State Board of Law Examiners of Michigan, and who furnish a proper certificate thereof, or who have passed the examination for admission to the bar in other states that have an equally high standard.

The examination for advanced standing will be upon the subjects in the course that have been taken by the class which the applicant seeks to enter, or upon their equivalent. Under this regulation, the applicant is allowed to select the subjects for examination, but they must be the equivalent of those that have been taken by the class. He will receive credit for the subjects passed, and as to such subjects the examination will be final.

ADMISSION TO THE GRADUATE CLASS

Applicants for admission to the graduate class must be at least twenty-one years of age.

Until further notice, the graduate course will be open to those who, otherwise qualified, have received the degree of Bachelor of Laws from an approved law school, maintaining an undergraduate course of not less than three years of nine months each. But the privileges of the course, leading to the degree of Master of Laws, are extended only to students who have special fitness and aptitude for advanced work. Those only are admitted to the course who are especially approved by the Faculty.

ADMISSION OF SPECIAL STUDENTS

Persons who have been reading for a considerable period before making application for admission to the department, but whose reading or preliminary preparation has not been sufficiently extensive to bring them within the rules for admission to any class, are allowed to become special students, with the privilege of pursuing a selected course of study, but without the privilege of being enrolled as candidates for a degree. They are permitted, under the guidance of the Faculty, to select subjects from the different courses. A like privilege is extended to persons who have not read law before applying for admission, and whose preliminary preparation is not such as to entitle them to enter as candidates for a degree.

All special students must, however, be at least twenty-one years of age; they must satisfy the Dean of the department that they are qualified to pursue the work with profit to themselves; and they are required to pursue and complete the courses selected with the same thoroughness as regular students.

TIME OF EXAMINATION

In the fall of 1905 examinations for admission will be held in the Department Building, Thursday, Friday, Saturday, and Monday, September 21, 22, 23, and 25, at eight o'clock and ten o'clock in the morning, and at two o'clock and four o'clock in the afternoon of each day. The examinations will have reference to general education, and to legal education of candidates for advanced standing. Applicants for advanced standing, unless exempt from the preliminary requirements, should be present on all the days of examination.

CLASS RATING

It is expected that, at the time of their admission to the department, students will apply for and obtain such class rating as they may desire and be entitled to, and that such rating will be final. But in the case of subsequent unexpected change in circumstances or conditions, the Faculty will, at the beginning of a semester only, entertain special applications to change from special to regular standing, or the contrary.

No student, however, is permitted to change from special to regular standing unless he possesses the general educational qualifications required for regular admission to the department; nor is any student permitted by such change to shorten the time which otherwise would have been required to complete the course of study.

If the change requested contemplates advanced standing, the student must comply with the requirements for admission to advanced standing as stated above.

No student will be recommended for graduation in June who has, at the beginning of the semester prior thereto, outstanding conditions on work previously pursued in the department. Examinations for the removal of conditions are held during the second week of October of each year.

COURSE OF INSTRUCTION

The course of instruction for undergraduates is a graded course extending through three academic years of nine months each. No one method is exclusively adopted, but, recognizing the advantages and disadvantages of each, the Faculty endeavors so to combine lectures with the use of text-books, and especially with the careful study of illustrative cases, as to give to the student the greatest breadth of view, the soundest scholarship, and the best practicable training for the active work of the profession.

The subjects upon which instruction is given, the time devoted to each subject, and the methods used, are described below. A schedule showing the hours when the several exercises are held, is published and distributed at the opening of each semester.

FIRST YEAR

The first year student has, in lecture and recitation work, twelve hours a week through the year. In addition to this, he has frequent quiz work with the instructors upon the subjects treated by lecture.

FIRST SEMESTER

Contracts.—Three hours a week. Text-book and cases accompanied by oral exposition. Class divided into sections. Professor Knowlton.

Criminal Law.—Two hours a week. Text-book and cases. Class divided into sections. Assistant Professor Rood.

Elementary Law.—Two hours a week. Lectures and text-book accompanied by oral exposition. Class divided into sections. Professor Goddard.

Husband and Wife.—Two hours a week. Lectures. Professor KIRCHNER and Mr. DWYER.

Sales, including Personal Property.—Two hours a week. Text-book and cases accompanied by oral exposition. Class divided into sections. Professor BATES.

Torts.—Two hours a week. Text-book and cases. Class divided into sections. Professor WILGUS.

SECOND SEMESTER

Agency.—Two hours a week. Text-book and cases accompanied by oral exposition. Class divided into sections. Professor GODDARD.

Contracts and Quasi-Contracts.—Three hours a week. Text-book and cases accompanied by oral exposition. Class divided into sections. Professor KNOWLTON.

Criminal Procedure.—Two hours a week. Text-book and cases accompanied by oral exposition. Class divided into sections Professor BUNKER.

Domestic Relations.—One hour a week. Text-book. Class divided into sections. Professor SAGE.

Real Property, Elementary.—Two hours a week. Text-book accompanied by oral exposition. Class divided into sections. Assistant Professor ROOD.

Torts.—Two hours a week. Text-book and cases. Class divided into sections. Professor WILGUS.

SECOND YEAR

The second-year student has, in lecture and recitation work. fifteen hours a week during the first semester and fourteen hours a week during the second semester. In addition to this, he has quiz work with the instructors in the subjects given by lecture.

FIRST SEMESTER

Bailments and Carriers.—Two hours a week. Text-book and cases. Class divided into sections. Professor GODDARD.

Bills of Exchange and Promissory Notes.—Two hours a week Text-book and cases accompanied by oral exposition. Class divided into sections. Professor BUNKER.

Common Law Pleading.—Two hours a week. Text-book and cases. Class divided into sections. Professor BOGLE.

Corporations, Private.—Two hours a week. Text-book and cases. Class divided into sections. Professor WILGUS.

Equity Jurisprudence.—Three hours a week. Text book and cases accompanied by oral exposition. Class divided into sections. Professor HUTCHINS.

Partnership.—Two hours a week. Text-book and cases. Class divided into sections. Professor Sage.

Real Property, including Fixtures, Easements, and Landlord and Tenant.—Two hours a week. Class divided into sections. Text-book. Professor Thompson.

SECOND SEMESTER

Code Pleading.—Two hours a week. Text-book and cases. Class divided into sections. Professor Bogle.

Corporations, Private.—Two hours a week. Text-book and cases. Class divided into sections. Professor Wilgus.

Damages.—Two hours a week. Cases. Class divided into sections. Professor Sage.

Equity Pleading and Procedure.—Two hours a week. Text-book. Class divided into sections. Professor Thompson.

Evidence.—Three hours a week. Text-book accompanied by oral exposition. Class divided into sections. Professor Lane.

Federal Practice: the Peculiar Jurisdiction and Practice of the Federal Courts.—One hour a week. Text-book. Class divided into sections. Professor Lane.

Real Property, Advanced.—Two hours a week. Text-book. Professor Thompson.

THIRD YEAR

The third-year student has, in lecture and recitation work, sixteen hours a week during the first semester, and fifteen hours the second. He has, in addition, the quiz work upon the lecture courses with the instructors, as well as the three electives, the thesis, and the practical work in the practice court and in conveyancing.

FIRST SEMESTER

Constitutional Law.—Two hours a week. Text-book and cases. Class divided into sections. Professor Lane.

Conveyancing.—Two hours a week. Text-book and practical work. Class divided into groups. Professor Brewster and Mr. Stein.

Execution, Attachment, and Garnishment.—Two hours a week. Cases. Class divided into sections. Assistant Professor Rood.

Mortgages.—Two hours a week. Professor Thompson.

Practical Instruction, including Legal Ethics, and the Preparation, Trial, and Argument of Causes.—One hour a week. Lectures. Professor Lane and Mr. Dwyer.

Practice Court.—Two hours a week. Class divided into groups of four. Professor Bogle and Assistant Professor Sunderland.

Private International Law.—Two hours a week. Lectures and cases. Professor Kirchner and Mr. Dwyer.

Public Officers.—One hour a week. Text-book. Class divided into sections. Professor Bates.

Taxation.—One hour a week. Text-book. Class divided into sections. Professor SAGE.

Suretyship.—One hour a week. Lectures and recitations. Class divided into sections. Professor BUNKER.

SECOND SEMESTER

Assignments for the Benefit of Creditors, Fraudulent Conveyances, and Practice Under the Bankruptcy Act.—One hour a week. Lectures. Professor THOMPSON, Mr. DAVOCK, and Mr. DWYER.

Conveyancing.—Two hours a week. Text-book and practical work. Class divided into groups. Professor BREWSTER and Mr. STEIN.

Corporations, Public.—One hour a week. Text-book. Class divided into sections. Professor BATES.

Equity Jurisprudence.—Two hours a week. Text-book and cases. Class divided into sections. Professor HUTCHINS.

Extraordinary Legal Remedies.—One hour a week. Text-book. Professor BATES.

The Science of Jurisprudence.—One hour a week. Text-book accompanied by oral exposition. Professor BOGLE.

Practice Court.—One hour a week. Class divided into groups of four. Profesor BOGLE and Assistant Professor SUNDERLAND.

Railway Law.—Two hours a week. Lectures and recitations. Professor GODDARD.

Specfic Performance, and Receivers.—Two hours a week. Lectures and cases. Professor BUNKER and Mr. DWYER.

Wills and Administration.—Two hours a week. Text-book. Class divided into sections. Professor BATES.

ELECTIVE STUDIES IN THIRD YEAR

In addition to the work outlined above, each student must elect and complete, during the third year, *three* of the following subjects:

Admiralty Law.—Lectures. Judge SWAN.

Copyright Law and Trade-marks.—Lectures. Mr. F. F. REED.

Insurance.—Lectures. Dr. M. M. BIGELOW.

Irrigation Law.—Lectures. Judge CLAYBERG.

Mathematics of Annuities and Insurance.—Lectures. Assistant Professor GLOVER.

Medical Jurisprudence.—Lectures. Professors VAUGHAN and HUTCHINS.

Michigan Statute Law.—Lectures. Mr. BOUDEMAN.

Mining Law.—Lectures. Judge CLAYBERG.

Neurology, Electrology, and Railway Injuries.—Lectures. Professor HERDMAN.

Patent Law.—Lectures. Mr. WALKER.

Roman Law.—Lectures. Professor DRAKE.

Statutory Construction.—Lectures. Mr. BOUDEMAN.

RECITATIONS AND EXAMINATIONS

For all text-book work, each class is divided into sections. Whenever a subject is taught by lecture, the professor giving the instruction holds frequent examinations upon the ground covered by previous lectures. Additional quiz work upon the lectures is also given by the instructors. For this purpose the classes are divided into small sections, in which students are required to recite upon the lectures after the manner adopted in text-book instruction.

At the end of each semester one week is set apart for the thorough examination of all students upon the work completed. The examinations are in writing, and are final as to the work of the semester. The promotion of a student to full standing in his class in a subsequent semester, and his continuance in the department are dependent upon the manner in which he passes such examinations. The Faculty does not hesitate to drop a student from the rolls at any time during the year, when satisfied that he is neglecting his work and not conforming to the requirements of the department.

THE PRACTICE COURT

It has been an objection frequently urged against the completeness of the training given in law schools that the student acquires no knowledge of actual practice. This objection has been largely removed by the introduction of the practice court. The practice court is a part of the department, and is presided over by the professor of practice, who gives his entire time to this work, while other members of the Faculty cooperate in conducting it. Its work is divided into three parts, that of the law term, that of the jury term, and that of appellate jurisdiction. The court is provided with a full corps of officers, including the members of the Faculty, who may sit from time to time as presiding judge, the full bench of judges sitting as a supreme court, a clerk, a sheriff, and the necessary deputies. Ample and commodious rooms have been provided for the use of the court, including a large court room fitted up with all the furniture and fittings necessary for the trial of jury cases, jury rooms, and clerk's office. The latter is provided with all the books and records used in actual practice, and a full supply of the blanks in common use in the several states.

The purpose of the court is to afford to the student practical instruction in pleading and practice both at law and in equity, under the common law system and the "code" or "reformed" procedure, and actual experience in the commencement and trial of cases through all their stages. In commencing the actions, the students assigned to the case are permitted to select the state in which the action is supposed to be brought, thus enabling the student to acquire the practice as prevailing in his own state. All questions of practice, pleading, and procedure are governed by the law of the state in which the action is so laid, but questions of substantive law are determined according to the weight of authority.

Two classes of cases are presented:

First. Cases arising upon given statements of fact, prepared and assigned by the professor of practice, upon which process is to be issued, pleadings framed, and the case conducted to an issue, when it is argued and disposed of as a question of law upon the facts submitted. The class of cases affords the student practical experience in the commencement of suits, the preparation of pleadings, and the argument of the questions of law arising from the facts. The practice and pleadings are under the common law or the code procedure as the students may elect. There are two public hearings in this course: *a.* The questions arising upon the pleadings are argued and disposed of at a regular session of the court presided over by the professor of practice. *b.* After the pleadings have been approved, the case is set down for a separate hearing upon the question of law. This argument is heard either by the professor of practice or by that member of the Faculty who has charge of the instruction in the subject involved. When the issues so arising have been satisfactorily disposed of, the student is given credit for the first course.

Second. Actual controversies are arranged and assigned for trial as issues of fact. The course includes the entire conduct of an actual case from its beginning to a final judgment in the supreme court. This involves the issue of a proper process, the preparation and filing of appropriate pleadings, the subpœnaing of the witnesses, the impaneling of a jury, the examination and cross-examination of witnesses, the arguments to the court and jury, and all the other incidents of a contested trial.

For the purpose of this work the class is divided into sections, and the work of attorneys, witnesses, jurors, and the like is performed by the students. A member of the Faculty presides at these trials, and they are conducted with all the dignity and decorum of actual practice. Upon the satisfactory completion of the course, credit is given for it.

Every member of the third-year class who is a candidate for a degree is expected to take part in both courses, and to perform all the incidental duties which may be required of him. Satisfactory completion of both courses is a condition precedent to graduation.

The practice court supersedes the moot courts formerly conducted in the department.

CONVEYANCING

In order further to extend the practical instruction given in this department, a course in conveyancing is provided, to which one professor devotes his entire time. It is the purpose of this course to give by text-books and lectures a full and systematic instruction in the substantive law of conveyancing, and also a thorough drill in the actual preparation of all the more important forms of conveyances, including thereunder not only deeds, mortgages, wills, and assignments of various sorts, but also all such contracts, agreements, corporate and partnership articles, and other instruments, as the lawyer in actual practice is likely to be called upon to prepare. To accomplish this purpose, the class is furnished with statements of fact and with a requisition for the appropriate conveyance, and each student is required to prepare, under the direction of the professor in charge of this course, the various forms of instruments in question, and to submit them for examination and criticism. If not in proper form, they must be rewritten or corrected. Neatness, accuracy, and a lawyer-like method of expression are insisted upon. The correctness of the body of the instrument is not alone attended to, but the variations of form in the execution and acknowledgment where one of the parties is a corporation, a partnership, a married woman, and the like, receive attention.

The work in this course must be satisfactorily completed by each member of the third-year class.

ELOCUTION AND ORATORY

It is important that those who study law with a view to becoming advocates should give attention to the subject of public speaking. It is a mistake to suppose that excellence in speaking is simply a gift of nature, and not the result of patient and persistent labor and study.

Information regarding the University Oratorical Association, the Northern Oratorical League, the Central Debating League, the testimonials, and the annual contests in oratory and debate, which afford opportunity for a practical application of the principles taught, may be found on pages 42 to 45.

The following courses, given by Professor TRUEBLOOD, are optional; but when a student has elected a course he is required to complete it. Failure to do so will affect his standing at graduation.

FIRST-YEAR CLASS

First Semester

1. *Elocution.* Exercises in vocal culture, breathing, position, and gesture; pronunciation and emphasis; elements of quality and force of voice, with their application to choice passages from the orators. Two sections. Two hours a week.

Second Semester

2. *Elocution.* Exercises in vocal culture, continued; principles of action. Elements of pitch and time, and their application to representative selections. Two sections. Two hours a week.

SECOND-YEAR CLASS

First Semester

3. *Study of Forensic Orators and Oratory.* Lectures on methods of public addresses and sources of power of the orator; study of representative orations. Two hours a week.

Second Semester

4. *Oral Discussions.* Designed to develop readiness of extemporization. Practical application of the principles of formal logic. Leading questions of the day debated in class. Lectures on argumentation and persuasion. Two hours a week.

THE GRADUATE COURSE

In 1889 the Board of Regents established in the Department of Law a Graduate Course, upon the completion of which the degree of Master of Laws is conferred. The requirements for admission to this course are given on page 211.

The course of study and the subjects on which graduate students recite and are examined are as follows:

Public International Law. Theses are required on topics assigned. President ANGELL.

History of Treaties. President ANGELL.

The Railroad Problem. Professor ADAMS.

Comparative Constitutional Law. Lectures on the institutions of Germany, France, and other continental states, with a study of works on the English Constitution. Professor HUDSON.

Advanced Course in Constitutional Law and Constitutional History. Assistant Professor VAN TYNE.

Roman Law. Professor DRAKE.

In addition to the foregoing subjects, each graduate student is required to elect at the opening of the university year *three* of the subjects hereinafter named, one of which he shall designate as his *major* subject, and the other two as his *minor* subjects. To the *major* subject the student must give his best energies, making his investigations therein thorough, comprehensive, and exhaustive. To the *minor* subjects he is expected to give all the attention which his time will permit. His work in the *minor* lines is of a more general character, and, although it must be thorough as far as prosecuted, it is less extended than that given to the *major* subject.

The subjects of study from which the student may select his *major* and his *minor* subjects, are as follows: Contracts; Torts; Mercantile Law; Public and Private Corporations; Railroad Law;

Insurance Law; Private International Law; Real Property; Jurisdiction and Procedure in Equity; Domestic Relations; Taxation: Public Offices; Admiralty; Roman Law; American Constitutional History; American Constitutional Law; English Constitutional History; Comparative Jurisprudence; Political Science.

Each graduate student is under the special guidance of the professors in whose departments his subjects lie. From them he receives instructions as to the questions to be investigated, and to them he makes regular weekly reports. The work of the student is carefully examined and criticised, and such suggestions are made as may be thought necessary. The scheme contemplates independent investigation by the student along the lines chosen, under the direction and supervision of the Faculty.

All of the special courses given by the non-resident lecturers are open to graduate students, and they are required to take such of them as they did not take as undergraduates. They are also allowed to attend the lectures given to the undergraduate classes, though undergraduates are not admitted to the lectures given to graduate students.

Each graduate student is also required to prepare a thesis, which must be scholarly and exhaustive in character, upon some topic connected with his *major* subject. This thesis is made a special feature of the graduate work.

The graduate course covers one year. At the end of each semester each student is examined both orally and in writing upon al' work taken.

REQUIREMENTS FOR GRADUATION

THESIS

Each candidate for a degree is required to prepare and present a thesis, not less than four thousand words in length, upon some legal topic selected or approved by the Committee on Theses.* The thesis must be satisfactory in matter, form, and style; must be neatly and accurately typewritten; and must be filed with the Committee *on or before the fifteenth of March of the year in which the degree is to be taken.*

THE DEGREE OF BACHELOR OF LAWS

Students who have received the full course of undergraduate instruction, performed all required exercises, and passed the regular examinations, are admitted to the degree of Bachelor of Laws. Students admitted to advanced standing are entitled to all the privileges of the class of which they become members.

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*The Committee on Theses for the current year consists of Professors Bunker, Bates, and Sage.

THE DEGREE OF MASTER OF LAWS

The degree of Master of Laws is conferred on the graduate of this department who pursues the study of law in this University for one year after graduation, and who completes to the satisfaction of the Law Faculty the graduate course above described (page 219); and the privilege thus extended to graduates of this department is also extended to the graduates of other law schools who are entitled under the foregoing rules to advanced standing as members of the graduate class.

CERTIFICATES OF ATTENDANCE

A person who has been connected with the school for a period not entitling him to graduate may, on application to the Dean of the department, receive an official certificate of attendance, which states the time of his attendance and the degree of his attainment.

LIBRARIES

The Law Library contains the reports of every State in the Union, the reports of the Federal Courts, the English, Scotch, Irish, and Canadian reports, together with such collateral reports as the Law Journal Reports, the Jurist, the Law Times Reports, the Weekly Reporter, the Scottish Law Reporter, the Irish Jurist, the Irish Law Times, the English Ruling Cases, the National Reporter System, the American Decisions, the American Reports, the American State Reports, and the Lawyers' Reports Annotated, as well as several series of cases upon particular branches, such as the American Probate Reports, the American Electrical Cases, the American and English Railroad Cases, the American and English Corporation Cases, etc. Of several of the more important series one or more duplicates are to be found in the library. It also contains an extensive collection of treatises and text-books, both English and American, and copies of the statutes of the several States and of the United States. New reports, as they are issued, are added, as are new text-books and treatises of merit. The library is also well supplied with sets of selected and leading cases and of legal periodicals. The Law Quarterly Review (London), the American Law Review, the American Law Register, the Canadian Law Journal, the Harvard Law Review, the Columbia Law Review, the Albany Law Journal, the Central Law Journal, the Juridical Review, the Green Bag, and others, are regularly taken and kept on file.

The library was enriched some years ago by the gift of the valuable law library of the Honorable Richard Fletcher, formerly one of the Justices of the Supreme Court of Massachusetts; and, recently, by the gift of the valuable law library of the Honorable Samuel T. Douglass, for many years one of the leading lawyers of the State, and formerly one of the Justices of the Supreme Court of Michigan.

The Honorable Christian H. Buhl, of Detroit, bequeathed to the University for the Law Library the sum of ten thousand dollars. This gift, which has been used in the purchase of books, has added materially to the value and efficiency of the large collection of reports and text-books presented to the library by Mr. Buhl a few years ago, and known as the Buhl Law Library. It has enabled the department to provide for its students library facilities that are second to none in the country.

The library is open for consultation by students from 8 A. M. to 12 M., from 1 to 6 P. M., and from 7 to 10 P. M., during the academic year. Students are not permitted to take books from the building, but during the hours named are allowed free access to them.

The General Library of the University (see page 28) is also open to use by students in the Department of Law.

STUDENTS' ORGANIZATIONS

Club Courts.—Club courts are organized, arranged, and conducted by the students with such assistance from members of the Faculty as may be desired. Records are prepared, and causes tried, as in actual practice. The courts are open to members of the upper classes, and students are advised to connect themselves with some one of these organizations.

Literary Societies.—There are three flourishing literary societies—the Webster, the Jeffersonian, and the Sumner—conducted by students of law for the purpose of literary culture.

WORK IN THE DEPARTMENT OF LITERATURE, SCIENCE, AND THE ARTS

CONSTITUTIONAL HISTORY AND POLITICAL SCIENCE

It seems now to be conceded that the law should be studied in a law school, and that the law school should be connected with a university, where students can avail themselves of opportunities for the study of such other branches of learning as are of allied significance.

It is believed that students in the Department of Law may derive great benefit from the instruction given on kindred subjects in the

Department of Literature, Science, and the Arts (page 49). Students who first obtain permission from the committee in charge of the combined work in the two departments (see below) are allowed to attend lectures delivered in that department free of charge. But the Law Faculty reserves the right to require such students to give up any or all studies they may be pursuing in the other department whenever it appears that the pursuit of these studies is attended with an unsatisfactory performance of the duties required in the Department of Law. Among the subjects regarded as particularly suitable for law students the following may be named: Political and Constitutional History of England; Constitutional History and Constitutional Law of the United States; Comparative Constitutional Law; History of the Middle Ages; Elements of International Law; History of Treaties; the social, sanitary, and economic sciences. (Compare pages 88 to 112.)

COMBINED LITERARY AND LAW COURSE

Under an arrangement entered into by the Faculties of the two departments it is now possible for a student to carry on, to some extent and under certain conditions, collegiate studies and studies in law at the same time. The work of students who receive permission to enter upon the combined course is under the supervision of a joint special committee consisting for the current year of Professors HUDSON, HUTCHINS, GODDARD, TAYLOR, and LLOYD.

A fuller description of the combined course may be found on page 124.

MASTER'S DEGREE IN ARTS AND SCIENCE

A graduate of the Department of Literature, Science, and the Arts, who is a candidate for a degree in the Department of Law may, by permission of the Faculties of the two departments, be enrolled at the same time in the Graduate School, as a candidate for a Master's degree (compare page 135). The privilege thus extended to graduates of this University is also extended to graduates of other colleges who satisfy the Faculty of the Department of Literature, Science, and the Arts, that the courses of study for which they obtained their first degree are equivalent to the courses of study for the corresponding degree at this University. Useful and desirable opportunities are thus afforded to college graduates who wish to study law and at the same time to supplement their professional studies with a broader knowledge of other branches that will be helpful to them in their professional work.

It is understood, however, that, if their work in the Department of Law is not satisfactory, the Law Faculty will require students of law to discontinue their studies for the Master's degree.

FEES AND EXPENSES

The Matriculation Fee and the Annual Fee must be paid in advance, and no student is allowed to select his seat until after such payment. Except by order of the Board of Regents, no portion of these fees can be refunded to students who leave the University during the academic year.

Matriculation Fee.—For Michigan students, *ten dollars;* for all others, *twenty-five dollars.*

Annual Fee.—For Michigan students, *thirty-five dollars;* for all others, *forty-five dollars.*

Library Fee.—For all students, *two dollars* annually.

Diploma Fee.—For all alike, *ten dollars.*

For additional information in regard to expenses, see pages 47 to 48.

School of Pharmacy

A special Announcement giving further information in regard to this school is published annually. For copies of this Announcement, or for other information relating to the school, address The School of Pharmacy, Ann Arbor, Michigan.

The School of Pharmacy gives training for all branches of pharmacy and for various chemical pursuits. It provides a well-grounded preparation for services as a manufacturing chemist, or as an analyst. The graduate is assured a thorough qualification for the prescription table, and for the most responsible positions in pharmacy. He is fitted to act as the chemist of the medical profession. In respect to the discipline of both the intellectual and the executive powers, the work of the school offers decided advantages, in the steady requirement of severe studies, and of exact operations on the part of each student.

The school year extends from the Tuesday preceding the last Wednesday in September to the Thursday preceding the last Wednesday in June (September 26, 1905, to June 21, 1906). Students of the first year are released the second Friday before Commencement.

For the full regular work, admission cannot be granted at any other time than at the opening of the first or the second semester (February 12, 1906), as students are instructed in classes in progressive order. For investigations, or special studies, students can be received at any time when there is room in the laboratories. The most of the subjects taught in the school can also be taken in the Summer Session of the University (see page 261).

REQUIREMENTS FOR ADMISSION

[For admission to advanced standing, see page *227*.]

[For admission of students not candidates for a degree, see page *228*.]

The requirements for admission vary in some particulars with the applicant's previous training in practical pharmacy, and with the course of study he intends to pursue. They are described below in two divisions: (I) requirements for admission to the two-year course, leading to the degree of Pharmaceutical Chemist; (II) requirements for admission to the four-year course, leading to the degree of Bachelor of Science in Pharmacy.

Application for admission must be made upon a special form of recommendation properly filled out and signed. Blank forms for this purpose are furnished on application to the Dean of the department.

I. COURSE LEADING TO THE DEGREE OF PHARMACEUTICAL CHEMIST

Applicants for admission to the two-year course, leading to the degree of Pharmaceutical Chemist, must be at least sixteen years of age.

ADMISSION WITHOUT EXAMINATION

From High Schools.—Applicants holding diplomas of graduation in any of the full courses of the schools approved by the Faculty of the Department of Literature, Science, and the Arts (compare page 57), are admitted without examination, as are, also, graduates of four-year courses of other high schools of good standing.

From Colleges.—Students who have completed at least one year's work in an approved college of literature and science, and who bring explicit and official certificates describing their course of study and scholarship, and testifying to their good character, are admitted without examination. Graduates of colleges of medicine or of pharmacy are also admitted without examination.

ADMISSION ON EXAMINATION

The requirements for admission are stated below in *units*, a unit meaning a subject of study pursued through a school year, with not less than four recitation periods each week.

1. Persons who have not been engaged in the practice of phar-

macy for at least two years are required to present themselves for examination on *fifteen units*. The fifteen units must include:

English, 2 units.
Mathematics (arithmetic, algebra, and plane geometry), 3 units.
Physics, 1 unit.

The remaining nine units may be selected by the applicant from the following list of optional requirements:

Chemistry, 1 unit.
Botany, 1 unit.
Physiology, 1 unit.
Latin, 2, 3, or 4 units.
German, 2, 3, or 4 units.
English Literature, 1 unit.
Zoology, 1 unit.
Mathematics (additional, including Solid Geometry), 1 unit.
Bookkeeping and Commercial Practice, 1 unit.
French, 2, 3, or 4 units.
Physiography, 1 unit.
History, 1, 2, or 3 units.
Civil Government, 1 unit.
Geology, 1 unit.
Astronomy, 1 unit.
Greek, 2 units.

2. Persons who bring evidence of *having been engaged in the practice of pharmacy* for at least two years are required to present themselves for examination on *twelve units*. The twelve units must include:

English, 2 units.
Mathematics (arithmetic and algebra), 2 units.
Physics, 1 unit.

The remaining seven units may be selected by the applicant from the list of optional requirements given above.

II. COURSE LEADING TO THE DEGREE OF BACHELOR OF SCIENCE IN PHARMACY

The requirements for admission to the four-year course, leading to the degree of Bachelor of Science in Pharmacy, are the same as the requirements for admission to the Department of Literature, Science, and the Arts. See pages 49 to 56.

The rules relating to conditional admission and to admission from diploma schools (page 57) apply also to students admitted to the four-year course in the School of Pharmacy.

ADMISSION TO ADVANCED STANDING

Students who have been admitted to the school may apply for credit in any of the subjects here taught, which they may have pursued in another college or in a high school whose graduates are entitled to admission. The application should be made to the Dean at the time of entering the school. It will be referred to the professor in charge of the studies in which credit is asked, and he will determine how much credit, if any, can be given. To this end he may appoint a time for examination of the applicant upon the subject. Credits from other schools of pharmacy are adjusted separately for each study, in a similar manner. Owing to differences in the order and extent of the studies, credits cannot be counted in years of pharmaceutical college study. Applicants are desired to bring explicit credentials as to the work done, or to send such credentials in advance, if they wish them acted upon before the opening of the school year.

Students in the four-year course, applying for advanced credit, will govern their applications according to the rules in force in the Department of Literature, Science, and the Arts (page 58), though making their application to the Dean of the School of Pharmacy.

ADMISSION OF STUDENTS NOT CANDIDATES FOR A DEGREE

Persons over twenty-one years of age, who are able to study with advantage in the school, may be admitted to pursue selected studies upon passing the admission requirements in three units of English. The same privilege is accorded to persons over nineteen years of age who also bring evidence of having been engaged in the practice of pharmacy for at least two years.

Students admitted under the foregoing provisions are not regarded as candidates for any degree, and they do not become eligible for graduation until they have passed all the examinations for admission to the course leading to the degree which they seek to obtain. To become eligible for graduation with the degree of Pharmaceutical Chemist, the student must, at least, pass the examination for admission required of those who have been engaged in the practice of pharmacy. To become eligible for graduation with the degree of Bachelor of Science, the student must meet the full entrance requirements of the course leading to that degree.

Students not candidates for a degree may select such studies as they are found prepared to pursue, under the regulations of the Faculty. Courses of selected studies are arranged for students, to suit their purposes and qualifications. Selected studies may be continued so long as, in the judgment of the Faculty, they are carried with success and profit.

TIME OF EXAMINATION

For Admission to the Two-Year Course.—An examination for admission will be held on Thursday and Friday, September 21 and 22, 1905, beginning at 9 A. M., on Thursday.

For Admission to the Four-Year Course.—The examination for admission will be held in connection with that of applicants for admission to the Department of Literature, Science, and the Arts (see page 56).

COURSES OF INSTRUCTION

The courses of instruction comprise lectures, recitations, and laboratory work. The amount of work in each course is expressed in hours, an *hour* signifying one exercise a week during one semester. A lecture or recitation is usually one hour in length. A laboratory exercise occupies approximately three hours, being continued until the work assigned to one exercise, or a due proportion of the work assigned to the course, has been completed. The satisfactory completion of one exercise a week during one semester, including a sufficient standing in the examination held at the end of the semester, entitles the student to one *hour of credit* toward graduation. It is expected that a lecture or a recitation, with the personal study necessary to maintain the student's standing in the subject, will take in all as much time as a laboratory exercise. Therefore an *hour of credit* is regarded as having the same value whether obtained in a course of lectures or in a course of laboratory exercises.

In the descriptive schedule that follows, the letters A, B, C, etc., denote courses designed primarily for students in the School of Pharmacy. The courses designated by numbers are, with a few exceptions, practically identical with corresponding courses, similarly numbered, given in the Department of Literature, Science, and the Arts (compare pages 103 to 120). The amount of credit toward graduation is indicated by the expressions *two hours, three hours,* etc.

PHARMACY

A. Theory and Practice of Pharmacy. Lectures and recitations. *Five hours.* Second semester. Mr. Blome.

B. Operative Pharmacy and Pharmaceutical Preparations. Laboratory work and recitations. *Eight hours.* First semester. Mr. Blome and Mr. Ziefle.

Course B must be preceded by Course 3 in Analytical Chemistry.

C .Pharmacopœia, National Formulary, and Prescription Practice. Lectures and work at the prescription stand. *Five hours.* Second semester. Mr. Blome.

BOTANY

A. Vegetable Histology. Lectures and laboratory work. *Three or five hours.* Professor NEWCOMBE.

B. Foods and Drugs. Lectures and laboratory work. *Five hours.* Second semester. Professor SCHLOTTERBECK.

PHARMACOGNOSY

C. Study of Crude Drugs. Lectures, recitations, and practical exercises. *Three hours.* First semester. Professor SCHLOTTERBECK.

E. Continuation of Course C. *Two hours.* Second semester. Professor SCHLOTTERBECK.

PHARMACOLOGY AND THERAPEUTICS

D. Materia Medica. Recitations and lectures. *Two hours.* First semester. Dr. EDMUNDS.

Course D may accompany Course C.

F. Continuation of Course D. *Two hours.* Second semester. Dr. EDMUNDS.

Course F may accompany Course E.

CHEMISTRY

1. Elementary Inorganic Chemistry. Experimental lectures, laboratory work, and recitations. *Extending through both semesters. In all, eight hours.* Lectures twice a week. Laboratory work twice a week. Recitation once a week. Mr. HIGLEY, Dr. HALE, and Mr. A. C. HOUGHTON.

A. Inorganic Chemistry, Descriptive and Experimental. Lectures and quizzes. *Five hours.* First semester. Professor S. L. BIGELOW.

Course A is for beginners, extending no further than Course 1.

2. Inorganic Chemistry, Descriptive and Experimental. Continuation of Course 1. Lectures and recitations. *Five hours.* Second semester. Mr. HIGLEY.

13. Elementary Physical Chemistry. Lectures, *three hours,* and laboratory work. Credit *three hours.* Assistant Professor HULETT.

Course 13 must be preceded by Course 5 and preceded or accompanied by Course A.

20. Physical Chemistry. Laboratory work ending in research. *Credit arranged.* Assistant Professor HULETT.

Course 20 is designed primarily for graduates, but is open, as an elective, to undergraduates who have sufficient preparation.

3. Qualitative Analysis. Laboratory work and recitations. *Ten hours.* Either first or second semester. Professor JOHNSON and Mr. H. H. WILLARD.

Course 3 should be preceded by a course in General Chemistry.

4. Advanced Qualitative Analysis. Laboratory work and recitations. Continuation of Course 3. *Four hours.* Second semester. Professor JOHNSON.

5. Quantitative Analysis. Laboratory work, lectures, recitations. *Seven hours.* Either first or second semester. Professor CAMPBELL.

Course 5 must be preceded by Course 3.

28. Advanced Quantitative Analysis. Laboratory work. *Five hours.* Either first or second semester. Professor CAMPBELL.

Course 28 must be preceded by Course 5. It is open only to those who receive special permission.

29. Iron and Steel Analysis. Laboratory work. *Five hours.* Either first or second semester. Professor CAMPBELL.

Course 29 is open to those who have completed Course 5 and have received special permission.

31. Analysis of Minerals. Laboratory work. *Five hours.* Either first or second semester. Professor CAMPBELL.

Course 31 must be preceded by Course 28. It is open only to those who receive special permission.

G. Water Analysis. Laboratory work and reading. *Three hours.* Either first or second semester. Professor PRESCOTT.

Course G must be preceded by Course 5. It is open only to those who receive special permission.

H. Two months' course in Qualitative Chemistry. Laboratory work and recitations. Four classes are formed during the year. Dr. DUNLAP.

7. Carbon Compounds. Lectures. *Five hours.* First semester. Professor GOMBERG.

Course 7 must be preceded by a course in General Chemistry and a course in Analytical Chemistry.

42. Organic Preparations. Laboratory work in organic synthesis *Three, four, or five hours.* Either first or second semester. Professor GOMBERG.

Course 42 may accompany or follow Course 7.

44. Organic Analysis and Drug Assaying. Laboratory work and lectures. *Seven hours.* Second semester. Professor SCHLOTTERBECK, Mr. BLOME, and Mr. ZIEFLE.

Course 44 must be preceded by Course 7 and by a course (5) in Quantitative Analysis.

DD. Sanitary and Commercial Organic Analysis. Continuation of Course 44. Laboratory work and reading. *Five hours.* Either first or second semester. Professor PRESCOTT.

E. Toxicology, Inorganic and Organic, Chemical and Microscopical. Laboratory work and reading. *Three hours.* Either first or second semester. Professor PRESCOTT.

Course E must be preceded by Course 44.

10. Organic Chemistry. Lectures. *Four hours.* Second semester. Professor PRESCOTT.

Course 10 is intended primarily for classes in other departments of the University, and is open to students in the School of Pharmacy only by special permission.

PHYSIOLOGICAL CHEMISTRY AND BACTERIOLOGY

2. Bacteriology. Lectures. *Three hours.* First semester. Professor NOVY.

3. Bacteriology. Laboratory work. *Three hours.* Professor NOVY.

Course 3 is given four times a year, each class working for two months.

7. Physiological Analysis, including the Analysis of Urine. Laboratory work and lectures. *Four hours.* Professor NOVY.

Course 7 is given four times a year, each class working for two months. It must be preceded by a course in Qualitative Analysis and by Course 7 in Organic Chemistry.

8. Physiological Chemistry. Continuation of Course 7. Laboratory work and lectures. *Seven hours.* Either first or second semester. Professor NOVY.

Course 8 must be preceded by a course in Quantitative Analysis.

PHARMACOLOGY

A. Pharmacology. Laboratory work and reading. *Three hours.* Either first or second semester. Professor CUSHNY.

Course A must be preceded by Course 10 in Organic Chemistry, and by previous work in Physiology. It is open only to those who receive special permission.

AA. Pharmacology. Lectures. *Five hours.* Either first or second semester. Professor CUSHNY.

B. Physiology. Lectures and recitations. *Four hours.* Either first or second semester. Professor LOMBARD.

Course B must be preceded by a course in Organic Chemistry, and it is also desirable that the student have had studies in Anatomy. It is open only to those who receive special permission.

MINERALOGY

1. Mineralogy. Lectures and laboratory work. *Two hours.* Either first or second semester. Assistant Professor KRAUS.

Course 1 should be preceded by a course in General Chemistry.

2. Mineralogy. Lectures and laboratory work. *Five hours.* Second semester. Assistant Professor Kraus.

Course 2 should be preceded by a course in General Chemistry and a course in Analytical Chemistry. It includes Course 1.

PHYSICS

1. Mechanics, Sound, and Light. *Four hours.* First semester. Professor Carhart.

For Course 1 a knowledge of plane trigonometry is indispensable.

2. Heat, Electricity, and Magnetism. Lectures. *Four hours.* Second semester. Professor Carhart.

Course 2 must be preceded by Course 1 and by a course in General or in Analytical Chemistry.

COMMERCIAL TRAINING

A practical course in commercial training, embracing such subjects as bookkeeping for the retail pharmacist, checks, notes, drafts and exchange, bills, statements, collections, price lists, credits, discounts, mercantile agencies, and inventories and balances, is prescribed for all students of the school.

RESEARCH

Courses in research, in either the first or second semester, are open to any regularly registered student, suitably prepared by previous training to enter upon an investigation, whether the results are to be published or not. The work undertaken is in charge of one or more members of the Faculty, and is entitled to credit toward a degree in proportion to its extent and value. The opportunity for undergraduates to enter upon research work is usually limited to the last year of the four-year course, and to the last semester of the two-year course. The holder of a fellowship devotes his time to experimental research with publication of the results in view.

EXAMINATIONS

An examination upon each course of instruction is held at the time the work of the course is completed. The examinations, therefore, are held mostly at the end of a semester (in February and in June).

The result of an examination, for each student enrolled, is reported to the Faculty by the professor in charge, in terms as follows:

Passed.—Entitling the student to full credit for the course.

Conditioned.—Imposing some specific condition, usually to take another examination, the condition to be fulfilled before credit can be given.

Provisionally Passed.—Withholding the credit from the course until the student shall have done better work in other studies, in the judgment of the Faculty as a whole, which can change the record of Provisionally Passed to a record of Passed, or Conditioned, or Not Passed, whenever such change shall be justified by the scholarship of the student in his several studies.

Not Passed.—Requiring the student to go over the regular exercises of the study again before he receives another examination.

Absent.—With statement of the cause of absence; if the student has left the class, stating at what time; or stating if absent without excuse or explanation.

SUCCESSION OF STUDIES

I. IN THE TWO-YEAR COURSE

First Year, First Semester:—Chemistry A (inorganic) and 3 (qualitative).

First Year, Second Semester:—Chemistry 5 (quantitative), Botany B (micro-botany); Pharmacy A.

Second Year, First Semester:—Pharmacy B (preparations), Chemistry 7 (organic), Pharmacognosy C, Pharmacology and Therapeutics D.

Second Year, Second Semester:—Chemistry 44 (drug assaying), Pharmacy C (technology and prescription practice), Pharmacognosy E, Pharmacology and Therapeutics F, Commercial Training.

The studies enumerated above are, without exception, required for the degree of Pharmaceutical Chemist. They constitute an amount of work which taxes the full working power of a student of average quickness and strength of scholarship. Students who enter the school at the beginning of the second semester will probably find it desirable to take five semesters for the completion of the work; and other students who desire a longer time for the same work may apply for it on entering the school, or during their first semester of residence, and obtain from the Faculty a distribution of all the work through five or six semesters, as may be found advisable in each case.

II. IN THE FOUR-YEAR COURSE

Students who enter the school prepared in Latin, in German, and in chemistry, as high school studies, are advised to arrange their work in general accordance with the scheme printed below, taking such additional elective work as may be found desirable. Students who enter with French instead of German, and without chemistry, are advised, in general, to follow the same scheme, with such modifications as may be necessary. In the first two years, the work is carried on largely in connection with classes in the Department of

Literature, Science, and the Arts. In the latter part of the course, considerable time is left free for elective studies and for research.

First Year, First Semester:—Mathematics, French or German, English, General Chemistry or Vegetable Histology.

First Year, Second Semester:—French or German, English, Botany B, General Chemistry.

Second Year, First Semester:—Qualitative Analysis, Physics, Pharmacognosy C.

Second Year, Second Semester:—Quantitative Analysis, Pharmacy A, Pharmacognosy E.

Third Year, First Semester:—Organic Chemistry, Mineralogy, Pharmacy B.

Third Year, Second Semester:—Organic Analysis, Pharmacy C elective studies.

Fourth Year, First Semester:—Synthetic Organic Chemistry. Pharmacology and Therapeutics D, elective studies.

Fourth Year, Second Semester:—Pharmacology and Therapeutics F, Bacteriology, elective studies.

III. IN SELECTED STUDIES

Students not expecting to graduate can enter for selected studies at the beginning of the first semester (September 26, 1905), at the beginning of the second semester (February 12, 1906), and, for certain short courses in analytical chemistry and in physiological chemistry, at the time the courses begin.

For pharmaceutical purposes, the student who is limited to one year will do well to take the regular studies of the first year in the Two-Year Course as given on page 234. All the work of the school is open to students not candidates for a degree, so far as they are prepared to engage in it.

ELECTION AND REGISTRATION OF STUDIES

On or before the first Saturday of each semester, each student should determine upon his studies for that period, and register them in due form upon an "election blank" obtained from the Secretary of the Faculty.

In the two-year course the studies are mainly, though not wholly, the same for all students, and the order of succession is as given on page 234. When opportunity of choice is offered, the student should consult in advance with members of the Faculty.

If a student registered in the School of Pharmacy takes work in mathematics, physics, language, or other subjects, in the Department of Literature, Science, and the Arts, he must also register such studies on an "election blank" of that department countersigned by the Dean of the School of Pharmacy.

REQUIREMENTS FOR GRADUATION

[Experience in the business of pharmacy is not made a requirement for a degree.]

THE DEGREE OF PHARMACEUTICAL CHEMIST

The degree of Pharmaceutical Chemist is conferred upon students who have completed the prescribed work of the two-year course, as described on page 234, and have obtained credit for examination therein in the manner above stated.

THE DEGREE OF BACHELOR OF SCIENCE IN PHARMACY

To obtain the recommendation of the Faculty for the degree of Bachelor of Science in Pharmacy, the student must secure *one hundred and twenty Hours of Credit.* The prescribed portion of this work is as follows, the figures in brackets denoting courses given in the Department of Literature, Science, and the Arts (compare pages 73 to 105):

In English:—Courses [1], [2].
In German:—For those who entered *without* German, Courses [1], [2]; for those who entered *with* German, four hours advanced German.
In French:—For those who entered *without* French, Courses [1], [2], or an equivalent; for those who entered *with* French, four hours advanced French.
In Mathematics:—Course [1].
In Physics:—Course [1].
In Chemistry:—Courses 1, 2, 3, 5, 7, 44.
In Mineralogy:—Course 1.
In Botany:—Course B.
In Pharmacognosy:—Courses C, E.
In Pharmacology and Therapeutics:—Courses D, F.
In Pharmacy:—Courses A, B, C.

From the other courses offered in the school, or in other departments of the University, the student, with the approval of the Faculty, must choose and complete enough, including those above prescribed, to make in all *one hundred and twenty* hours of credit.

GRADUATE COURSES

In Pharmacology, Bacteriology, and Physiological Chemistry.—Graduates of the school are given opportunity to pursue advanced work in these studies; and to those who satisfactorily complete elected work in them, a formal certificate will be granted by the Faculty. See pages 111 and 192 for courses in Bacteriology and

Physiological Chemistry, and page 193 for courses in Pharmacology, which are recommended to graduate students.

For the Degree of Master of Science in Pharmacy.—Advanced courses of study are offered in the several branches taught in the school, suitable for graduates who wish to earn the degree of Master of Science in Pharmacy. This degree is conferred upon students who already hold the degree of Bachelor of Science in Pharmacy, and who have pursued for at least a year an approved course of graduate study, comprising a major subject and two minor subjects, and have satisfactorily passed examinations thereon.

FELLOWSHIPS

Stearns Fellowship.—The Stearns Fellowship in research has been maintained since 1895 by means of gifts made for this purpose by Messrs. Frederick Stearns & Company, of Detroit. The income of the fellowship at present is three hundred and fifty dollars a year. In 1904-1905 the research is on the chemistry of medicinal alkaloids. Appointments to the fellowship are made by the Board of Regents, on recommendation of the Faculty.

Fellowship in Chemistry.—The Fellowship in Chemistry supported by Messrs. Parke, Davis & Company (see page 128) also makes provision for work in pharmaceutical chemistry.

BOTANICAL GARDEN

In the botanical garden, near the building used by the School of Pharmacy, the principal orders of flowering plants are cultivated, together with the most important of the medicinal species. There are also experimental plantations, where drugs are grown for chemical and pharmacological investigation.

LIBRARY, BOOKS OF REFERENCE, AND TEXT-BOOKS

The school has an extensive library, the main portion of which is shelved with the General Library of the University (see page 28). It contains complete sets of the journals, the original repositories of the sciences related to pharmacy, as well as the current periodicals of the profession, encyclopædias, and hand-books of chemistry and pharmacy, and the latest works of value in study.

A working library, in a reading alcove of the chemical building, is provided with more than a thousand volumes for immediate reference, duplicates of those in the General Library. These books are in constant use by students in connection with their laboratory work, and in preparing for their recitations. Files of current numbers of the journals of chemistry and of pharmacy are also kept in the reading-room.

The reference and text-books in use in the school include the following: In General Chemistry, Holleman; in Qualitative Analysis, Prescott and Johnson; in Quantitative Analysis, Clowes and Colman's *Select Methods;* in Pharmacy, the U. S. *Pharmacopoeia* and Caspari; in Botany, Greenish, *Foods and Drugs;* in Pharmacology and Therapeutics, Cushny; in Organic Chemistry, Holleman; in Organic Analysis, Prescott, Allen, Lyons.

FEES AND EXPENSES

The Matriculation Fee and the Annual Fee must be paid in advance. Except by order of the Board of Regents, no portion of these fees can be refunded to students who leave the University during the academic year.

Matriculation Fee.—For Michigan students, *ten dollars;* for all others, *twenty-five dollars.*

Annual Fee.—For Michigan students, *thirty-five dollars;* for all others, *forty-five dollars.*

Diploma Fee.—For all alike, *ten dollars.*

Laboratory Expenses.—These vary with the prudence and economy of the student, the average amount being about one dollar and twenty cents a week.

For additional information in regard to expenses, see pages 47 to 48.

Homœopathic Medical College

A special Announcement giving further information in regard to this college is published annually. For copies of this Announcement or for other information relating to the college, address Dr. Royal S. Copeland, Secretary of the Faculty, Ann Arbor, Michigan.

THE Homœopathic Medical College, established as a department of the University in 1875, offers superior advantages to students who desire thorough instruction in homœopathy. It has commodious buildings on the University campus and, across the street, a well-equipped hospital.

The college year extends from the Tuesday preceding the last Wednesday in September to the Thursday preceding the last Wednesday in June (September 26, 1905, to June 21, 1906).

REQUIREMENTS FOR ADMISSION

Every applicant for admission to the Homœopathic Medical College must be at least seventeen years of age, and must present to the Faculty satisfactory evidence of a good moral character.

Women are admitted, as to all other departments of the University, on the same conditions as men.

Matriculates in a regular course in the Department of Literature, Science, and the Arts (page 49), graduates of colleges of good standing, graduates of approved diploma schools* and of other high schools of equal standing, are admitted without examination on presentation of proper evidence to the Secretary of the Faculty. For all others the requirements for admission are as follows:

English.—Each applicant will be required to write an essay of not less than two pages (foolscap), correct in spelling, punctuation, capitalizing, grammar, and paragraphing.

Mathematics.—ARITHMETIC.—Fundamental rules, fractions (common and decimal), denominate numbers, percentage, proportion, involution and evolution, and the metric system of weights and measures. ALGEBRA.—Fundamental rules, fractions, equations of the first degree containing two or more unknown quantities. GEOMETRY.—Plane geometry.

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*The diploma schools comprise all those approved by the Faculty of the Department of Literature, Science, and the Arts. Compare page 57.

Physics.—An amount represented by Carhart and Chute's *Elements of Physics.*

Botany.—The elements of vegetable anatomy and physiology as given in Spalding's *Introduction to Botany.*

Zoology or Physical Geography.—The applicant may offer either one of these subjects. The requirement in each subject is as follows: ZOOLOGY.—Packard's *Zoology,* briefer course; or McMurrich's *Invertebrate Morphology.* PHYSICAL GEOGRAPHY.—Tarr's *Elementary Physical Geography,* or an equivalent.

History.—Myers's *General History,* or an equivalent; and Johnston's *History of the United States,* or McLaughlin's *History of the American Nation.*

Latin.—Jones's *First Latin Book,* or an equivalent amount in any other text-book. An applicant who is not prepared to pass the examination in Latin may take a condition in this subject, which condition he must remove before entering upon the work of the second year.

Time of Examination

The examination for admission will be held Monday, September 25, 1905. Applicants are required to present themselves on this day, as they are expected to be in attendance on the first day of the term, when the regular course of instruction begins. To provide for cases in which it is absolutely impossible for the applicant to be present at the time announced, supplementary examinations will be held at such time as may be determined upon by the Faculty; but no excuse, except of an urgent character, will be accepted for failure to appear at the first examination.

Before admission to examination, every applicant is required to present to the Secretary of the Faculty the Treasurer's receipt for the payment of the matriculation fee and the annual fee; it will, therefore, be necessary for him to apply first to the Secretary of the University at his office in University Hall, register his name as a student in the Homœopathic Medical College, and pay his fees to the Treasurer. In case of rejection the money paid preliminary to examination will be refunded.

ADMISSION TO ADVANCED STANDING

Persons who have studied medicine elsewhere may be admitted to advanced standing upon evidence of proficiency in the studies which have already been pursued by the class to which they seek admission.

Students in the Department of Literature, Science, and the Arts, who desire to study medicine in this college, can gain advanced standing by taking, as a part of their work in that department, courses practically identical with some of those prescribed for graduation in medicine. By making proper choice of elective studies it is possible for a student to earn the two degrees, Bachelor of Arts and Doctor of Medicine, in six years (compare pages 124 and 196). Students desiring to take advantage of this opportunity for combining literary and professional work, should consult the Dean of the college, and should consult frequently, after the first year of residence in the University, with a committee appointed to consider questions arising in this connection. This committee consists at present of Professors HINSDALE and COPELAND.

COURSES OF INSTRUCTION

DESCRIPTION OF COURSES

A. SUBJECTS UNDER THE IMMEDIATE CHARGE OF MEMBERS OF THE FACULTY OF THE HOMŒPATHIC MEDICAL COLLEGE.

Surgery.—A complete course of lectures on minor surgery and bandaging is given to the students of the first year.

A complete course of lectures on operative surgery, fractures, and dislocations, and on the principles of surgery, is given to students of the third and fourth years.

Candidates for graduation are required to demonstrate their knowledge of operative surgery by operating on the cadaver, a sufficient number of subjects being provided by the authorities without expense to the class.

Students are assigned cases to diagnose and present to the class; and, under proper direction, are allowed to make the necessary preparations for operations, and to assist, when assistance is required. Advanced students, under the immediate supervision of the surgeon in charge, are also allowed to treat patients that have been operated upon. Special effort is made to remove the criticism against practitioners of Homœopathy that they have no knowledge of surgery.

Materia Medica and Therapeutics.—Materia medica is taught as a natural science. Three lectures are given weekly, based as far as possible on studies of the original provings, paying special attention to the genius of each drug, its characteristics, and its relationship to other drugs. The physiological action of drugs, as ordinarily understood, is duly considered.

Systematic instruction in the principles and philosophy of Homœopathy is a natural feature. This course is given to the whole body of students, beginners as well as the more advanced, in order to fix in their minds the underlying principles of the science of homœopathic practice.

A thorough laboratory course in drug proving is a special feature of this college. Students are required to do a certain amount of original work in drug pathogenesy under the supervision of the professor of materia medica. A course in homœopathic pharmacology is also given.

Pharmacy and Pharmacology.—Each student is required to prepare from the crude material, ready for use, a series of remedies. A practical course in field medical botany is given by a demonstrator who goes with the class to places where native medicinal plants are found growing in their natural condition. The plants are gathered and prepared for making mother tinctures and for trituration.

The Principles of Medicine.—The principles of medicine are taught in a separate course setting forth the scientific explanation of disease and the principles upon which a system of cure must be constructed. Attention is given to historic medicine and the various systems that have been in practice as a means of attempted cure. In the medical clinic the idea is never lost sight of that the function of the physician is to cure the sick, and that to accomplish this end accurate prescribing is of the highest importance.

Theory and Practice.—The instruction in theory and practice is didactic and clinical. The subject is divided into separate courses covering all the ground, both general and special, with which a physician in general practice must be familiar. In this connection a special course in diseases peculiar to childhood, and in the feeding of infants and invalids, is given. The aim is to make the student, by applying his knowledge of pathology, a good diagnostician, and, by his knowledge of materia medica, a good prescriber. In the clinics especial attention is given to dietetics and other regimenal means of treatment.

Medical and Physical Diagnosis.—Diagnosis is taught as a separate branch, with the use of text-books supplemented by lectures and practical demonstrations. This subject occupies one hour a week throughout an entire year.

Obstetrics and Gynaecology.—The course of study in these branches is so arranged that separate lectures are given to the several classes in a graded course. Students of the first year are drilled in the fundamental branches of gynæcology, and are taught the use of instruments, the various methods of making gynæcological examinations, etc. With the third year the student enters upon both didactic and clinical work. In the last year of the course lectures are delivered upon special subjects, and the senior students are required to make physical and local examinations in the sub-clinics of this department, thus familiarizing themselves with the various methods of practicing touch, palpation, obstetric ausculation, etc., and utilizing to the best possible advantage the many patients availing themselves of this special department of the clinic. Cases in obstetrics are assigned to each senior for his especial delivery and personal attendance.

Ophthalmology, Otology, and Laryngology.—Regular lectures on these important specialties, amply illustrated from the abundance of clinical material at the disposal of the Faculty, are given in the third and fourth years. The eye-and-ear, nose, and throat clinic forms one of the most interesting features of the clinical work, and affords the class every facility for a thorough, practical study of all the diseases of these organs that come under the observation of the physician. Students have cases assigned them for dressing and treatment, and thus acquire practical skill and knowledge in diagnosis, in the use of the various instruments, and in the correction of errors of refraction.

Mental Diseases.—A special course of lectures on mental diseases is given by Dr. OSCAR R. LONG, Superintendent of the State Asylum.

Nervous Diseases.—Every effort is used to make this department of study as complete as possible. There is an abundance of clinical material to demonstrate all the more frequent forms of nervous diseases as well as many of the rarer ones. A special course of lectures on this subject is given by Dr. WILLIAM A. POLGLASE, Superintendent of the Home for the Feeble-Minded and Epileptic.

Diseases of Children.—A full course of instruction is given in this subject.

Demonstration Courses in the Specialties.—Before graduation each student is required to do actual work in demonstrating his medical and surgical skill. By operating upon the cadaver and upon animals; by manipulation of manikins and models; by actual dressing of wounds and bandaging; by thorough drill in the practical use of the ophthalmoscope, the laryngoscope, the test case, and in spectacle fitting; by the use of the microscope and the spectroscope; by the making of tinctures and dilutions; by bedside demonstrations and examinations; by actual prescribing; by these methods the students become practical, and are prepared to make successful physicians. The classes are divided into sections, and each individual has his share of actual work. For these demonstration courses there is no extra expense. Students also assist at operations and take turns in ward visiting. It is believed that the advantages offered for the practical application of theoretical knowledge are unsurpassed in this country. Students come in personal contact with the members of the Faculty, and profit accordingly.

ORDER OF INSTRUCTION

The following summary shows the arrangement of the instruction in the subjects named for the several years and semesters of the course.

SURGERY

1. Lectures and Recitations. Once a week. First and second years. Professor D. T. SMITH.
2. Lectures and Recitations. Three times a week. Third and fourth years. Professor D. T. SMITH.
3. Surgical clinic. Twice a week. Third and fourth years. Professor D. T. SMITH.

PATHOLOGY

1. Lectures and Recitations. Twice a week. Second and third years. Professor HINSDALE.

PHARMACY

1. Lectures and Recitations. Once a week, second semester. First year. Professor DEWEY.

THEORY AND PRACTICE AND DIAGNOSIS

1. Principles of Medicine. Lectures and recitations. Once a week. First year. Professor HINSDALE.
2. Theory and Practice. Lectures and recitations. Once a week. Second year. Professor HINSDALE.
3. Medical Diagnosis. Lectures and recitations. Three times a week. Third and fourth years. Professor HINSDALE.
4. General Medicine. Clinical Course. Three times a week. Third and fourth years. Professor HINSDALE.

MATERIA MEDICA

1. Materia Medica. Lectures and recitations. Three times a week. Third and fourth years. Professor DEWEY.
2. Principles of Homœopathy. Lectures and recitations. Once a week. Fourth year. Professor DEWEY.

MENTAL AND NERVOUS DISEASES

1. Lectures and Clinics. Once a week. Third and fourth years. Professor DEWEY, Dr. LONG, and Dr. POLGLASE.

OPHTHALMOLOGY, LARYNGOLOGY, AND OTOLOGY

1. Lectures and Recitations. Once a week. Third year. Professor COPELAND.
2. Eye, Ear, Nose, and Throat Clinic. Twice a week. Third and fourth years. Professor COPELAND and Dr. IBERSHOFF.
3. Ophthalmology. Lectures and recitations. Twice a week. Fourth year. Professor COPELAND.
4. Otology. Lectures and recitations. Once a week, second semester. Fourth year. Professor COPELAND.
5. Laryngology. Lectures and recitations. Once a week, first semester. Fourth year. Professor COPELAND.

GYNÆCOLOGY AND OBSTETRICS

1. Minor Gynæcology. Lectures and recitations. Once a week. Third year. Professor KINYON.
2. Major Gynæcology. Lectures and recitations. Twice a week. Third and fourth years. Professor KINYON.
3. Obstetrics. Lectures and recitations. Twice a week. Third and fourth years. Professor KINYON.
4. Gynæcology Clinic. Twice a week. Third and fourth years. Professor KINYON.

B. SUBJECTS PURSUED IN CONNECTION WITH CLASSES IN THE DEPARTMENT OF MEDICINE AND SURGERY

Chemistry (General, Organic, Physiological); Physics; Anatomy; Osteology; Histology; Embryology; Physiology; Bacteriology; Hygiene; Medical Jurisprudence.—The instruction in these subjects is given in connection with classes in the Department of Medicine and Surgery. Its nature and extent, and its arrangement for the several years and semesters of the course, may be seen by reference to pages 191 to 193.

INSTRUCTION FOR WOMEN

The course of instruction for women is in all respects equal to that for men. Practical anatomy is pursued by the two sexes in separate rooms; but in the lectures, in public clinics, in the laboratories, and in various class exercises, it is found that both sexes may attend with propriety at the same time.

EXAMINATIONS

At the end of each semester examinations (written, oral, or both written and oral) are held on all subjects taught during the semester, and each student's grade is entered upon the records of the Faculty.

Students *"conditioned"* cannot apply for another examination in the same subject until the close of the next course or semester, except that a student conditioned at the close of the college year may ask for another examination in the first two weeks of the following year. Students reported *"not passed"* are required to take the course over again before applying for another examination.

REQUIREMENTS FOR GRADUATION

To be admitted to the degree of Doctor of Medicine, a student must be twenty-one years of age and possess a good moral character. He must have completed the required courses in laboratory work, and have passed satisfactory examinations on all the required studies included in the full course of instruction. He must have been engaged in the study of medicine for the period of four years, the last of which must have been in this college.

GRADUATE COURSES

Medical science has made such rapid progress during recent years that graduates of a short time ago feel the necessity of returning to the medical centres for further light in the modern advances. The laboratories and special courses of this college offer superior advantages to graduates.

The nature of the work arranged for graduate students in hygiene bacteriology, electrotherapeutics, pathology, physiology, histology, chemistry, and anatomy may be learned by a reference to page 197.

In the practical branches, such as materia medica, physical diagnosis, surgery, ophthalmology, otology, laryngology, obstetrics, and gynæcology, graduate instruction may be had, by special arrangement with the professors in charge, in connection with the demonstration courses given to students in the last two years of their course.

SPECIAL LECTURE AND CLINICAL COURSES FOR GRADUATES AND PRACTITIONERS

During the year, at such times as may be most convenient, short courses of special lectures are given by members of the Faculty and other persons on a variety of subjects interesting to graduates and to physicians in active practice; and in this connection there is also offered a special practitioner's clinical course.

The fee for the lecture course is *ten dollars,* and a certificate stating the amount of work accomplished will be given all those who complete the course, and who already hold the degree of M.D. No fee is charged, and no certificate is given those who attend the clinics alone.

FACILITIES FOR INSTRUCTION

Museums and Laboratories.—The museums of anatomy and materia medica, comprising thousands of specimens, models, and charts, afford the best means attainable for the close study of anatomy, physiology, and pathology. The general and special cabinets of the University, containing about 255,000 specimens, are also open freely to all students. (Compare pages 30 to 34.) The facilities for the study of chemistry, afforded by the chemical laboratory, are not excelled in any medical college in this country, and the arrangements for the laboratory work are such that medical students, in classes, and working under the direction of the professors in charge, receive practical instruction in the courses in qualitative chemistry and in the analysis of urine, a knowledge of which has become absolutely indispensable to the successful physician. The histological laboratory, amply supplied with microscopes, sphygmographs, stereopticon, etc., offers rare facilities for the prosecution of practical work in experimental physiology and histology. The hygienic and anatomical laboratories are models of beauty and convenience, affording facilities for instruction in hygiene and in practical anatomy unsurpassed, if equalled, by those of any other institution of learning in the United States. For a more full description of the laboratories of the University used by homœopathic students in common with students of other departments, see pages 35 to 39 and 199 to 203.

Pathogenetic Laboratory.—A laboratory of experimental pathogenesy, in the Homœopathic Building, is equipped with the necessary apparatus for experimentation with medicinal substances on the healthy human body. This is a special feature of this college. Provings are made, and each student is required to do a certain amount of original work and research in the pathogenic field. A complete course in homœopathic pharmaceutics is also given in this laboratory.

Libraries.—The General Library of the University (see page 28) is open to the free use of students. Important additions have recently been made to the collection of works on homœopathy. A large number of homœopathic publications, domestic and foreign, are regularly received and kept on file in the library reading-room.

Other Facilities.—Students in the Homœopathic College have the privilege of attending the scientific and philosophical lectures, collateral to medicine, given in the Department of Literature, Science, and the Arts. For a description of the gymnasiums, and the conditions on which they are open to students, see page 41.

THE UNIVERSITY HOSPITAL (HOMŒOPATHIC)

The University Hospital (Homœopathic) stands a little to the northeast of the University campus. It has a frontage of two hundred feet, and the ground plan resembles, in general, the letter T. Each end of the top line of the letter represents a ward, and the base is occupied by the operating and the clinic rooms. There are, in all, six wards, and about twenty private rooms. The building extends back over the brow of a hill, and a rear view shows five stories in the clear. The general wards are planned each for sixteen beds. Sun parlors, one in front of each ward, are available as sitting-rooms for patients able to leave their beds. The plumbing is elaborate and of thorough construction. The building is heated by steam, and the ventilating system is guaranteed to change the air in the entire building every five minutes.

There are separate wards for children and for obstetrical patients. The facilities for treating obstetrical cases have been largely increased. During the past year each senior student attended twenty cases of confinement.

The hospital is furnished with all modern electrical appliances, and, under direction, skilled attendants apply electrical treatment. The junior and senior students receive special instruction in this line.

Surgical, medical, gynæcological, neurological, and ophthalmological clinics are held daily in the spacious amphitheatre. Examinations of patients are made by the professors in charge, and by students under the direction of professors; prescriptions are given; and surgical operations are performed, in the presence of the class. The several clinics are held on separate days, of which the profession throughout the State will be notified.

Much attention is paid to physical diagnosis, and the abundance of clinical material furnishes many interesting cases. Students are required to take the history of patients, and, under proper supervision, make personal examination and prescribe remedies. It is the aim of the Faculty to make clinical instruction systematic and thorough.

The hospital is kept open for patients during the college year and also in the summer vacation. The expenses to patients are only for their board, for unusual appliances or special nursing, and for medicines, the services of the Faculty being rendered gratuitously to those made available for clinical instruction.

Patients who desire to enter the hospital are requested to write to the medical superintendent to ascertain if there is room for their accommodation, and to obtain a circular giving more fully the rules governing admission.

Training School for Nurses.—In connection with the Hospital there is a nurses' home and a training school for nurses under the charge of a competent and experienced principal. The term of study and service extends through three years, at the expiration of which time those who have proved trustworthy are granted certificates of graduation. For further information in regard to this school, application may be made to Dr. ROYAL S. COPELAND, Ann Arbor, Michigan.

FEES AND EXPENSES

The Matriculation Fee and the Annual Fee must be paid in advance, and no student can select his seat until after such payment. Except by order of the Board of Regents, no portion of these fees can be refunded to students who leave the University during the academic year.

Matriculation Fee.—For Michigan students, *ten dollars;* for all others, *twenty-five dollars.*

Annual Fee.—For Michigan students, *thirty-five dollars;* for all others, *forty-five dollars.*

Diploma Fee.—For all alike, *ten dollars.*

Graduate Courses.—A fee of *ten dollars* is charged graduate students for each course taken. Graduate students who pursue laboratory courses are also required to pay the ordinary laboratory expenses of such courses.

Laboratory Expenses.—In the laboratories, the students pay for the material used, and the expenses vary somewhat with the care and economy practiced. The required laboratory courses cost approximately as follows:

Anatomy	$10 00
Chemistry	15 00
Bacteriology	15 00
Physiological Chemistry	15 00
Histology	7 00
Pathological Histology	10 00

The total amount of fees paid to the University during the whole four years' course, for matriculation, incidental expenses, materials used, and diploma, is, for Michigan students, about $230.00; and for others, about $285.00, varying a little with the student's actual laboratory expenses.

For additional information in regard to expenses, see pages 47 to 48.

Students arriving in Ann Arbor, and desiring further information, should apply at the office of the Faculty, in the Homœopathic College, North University Avenue. The office will be open daily during the latter part of September, and members of the Faculty, or other persons competent to give information, will be in attendance.

College of Dental Surgery

A special Announcement giving further information in regard to this college is published annually. For copies of this Announcement, or for other information relating to the college, address The Dental College, Ann Arbor, Michigan.

THE College of Dental Surgery was established as a department of the University in 1875. The college year extends from the Tuesday preceding the last Wednesday in September to the Thursday preceding the last Wednesday in June (September 26, 1905, to June 21, 1906). The lectures close about June 9 in order to allow time for the final examinations before Commencement.

REQUIREMENTS FOR ADMISSION

Applicants for admission must be at least eighteen years of age, and must present to the Faculty satisfactory evidence of good moral character. This should be in the form of a letter from a reputable dental or medical practitioner in the place from which the applicant comes.

Matriculates in the other scientific departments of the University, and graduates of recognized colleges, academies, or high schools, are admitted without further examination on presentation of proper diploma or certificate. Commercial and English diplomas are accepted only so far as they include the studies indicated in the scheme for examination as printed below. Applicants are requested to bring, or send to the Secretary of the Faculty, a statement from the superintendent of the school from which the diploma was obtained, naming the subjects studied and the credit given for each study. Blank forms on which to make such statement are furnished on application to Dr. N. S. HOFF, Secretary of the Dental Faculty.

Other applicants are examined as to their previous education and their fitness to enter the course. The subjects of examination are as follows:

English.—The purpose of the examination is to test the applicant's ability to use the English language correctly. To this end he will be asked to write an essay of at least three hundred words, upon some subject assigned to him at the examination. As preparation for this requirement, regular practice in writing is recommended. The student should prepare numerous written exercises so selected as to give proper training in the several varieties of discourse. This requirement is intended to include the grammar, rhetoric, and essay writing of a good high school course.

History.—Myers's *General History,* and McLaughlin's *History of the American Nation,* or equivalents.

Mathematics.—ARITHMETIC.—Fundamental rules, fractions (common and decimal), denominate numbers, percentage, proportion, involution and evolution, and the metric system of weights and measures. ALGEBRA.—Fundamental rules, fractions, equations of the first degree, containing two or more unknown quantities. GEOMETRY.—Plane geometry, as given in Beman and Smith's *New Plane and Solid Geometry,* or an equivalent.

Physics.—An amount represented by Carhart and Chute's *Elements of Physics.*

Latin.—Jones's *First Latin Book,* or an equivalent amount in any other text-book, and four books of Caesar's *Gallic War.* A year of study in either German or French, or a year of manual training or dental office experience, may be substituted for the second year's study in Latin.

Chemistry, Botany, Zoology, Physical Geography, Physiology, and Manual Training.—The applicant must offer *three* of these subjects. The requirements in each subject are as follows:

GENERAL CHEMISTRY.—The requirement is intended to cover one year's work. As a text-book, Freer's *Elementary Chemistry,* or an equivalent amount of work in Remsen's *Introduction to the Study of Chemistry,* is recommended. The text should be accompanied by laboratory work, if possible.

BOTANY.—The elements of vegetable morphology and physiology as given in Spalding's *Introduction to Botany.*

ZOOLOGY.—Packard's *Zoology,* briefer course.

PHYSICAL GEOGRAPHY.—Tarr's *Elementary Physical Geography,* especially chapters 9 to 21, inclusive, or an equivalent.

PHYSIOLOGY.—Martin's *The Human Body.*

Time of Examination

The entrance examination will be held Monday, September 25, 1905, beginning at 10 A. M. Applicants are expected to be present at that time, but to provide for cases in which it is impossible for the applicant to be present, other examinations will be held at such times as may be determined by the Faculty.

Before admission to the examination, every student is required to present to the Dean of the Faculty the Treasurer's receipt for the payment of the matriculation fee and the annual fee. It will therefore be necessary for the candidate to apply first to the Secretary of the University at his office in University Hall, register his name as a student in the College of Dental Surgery, and pay his fees to the Treasurer. In case of rejection the money paid preliminary to examination will be refunded.

In order to receive credit for a full course, students must enter within ten days after the opening of the college year. Students are allowed to enter, however, at the beginning of the second semester (February 12, 1906) and receive credit for a half-year's work. It is very important that first-year students be present promptly at the opening of the year.

ADMISSION TO ADVANCED STANDING

Persons qualified for admission to this college who have studied dentistry in other recognized schools for at least one year, may be admitted to advanced standing, after passing a satisfactory examination in the studies which have already been pursued by the class to which they seek admission.

ASSIGNMENT OF SEATS

Students are assigned seats in the lecture room, places in the dental laboratory, and chairs in the operating room, in the order in which they matriculate and register; and each student is expected to occupy the places so selected during the session.

COURSE OF INSTRUCTION

In the arrangement of the course, the aim has been three-fold: to accommodate and benefit students who desire a thorough dental education, to meet the expectation of the dental profession, and to serve the best interests of the public. To this end a graded course of study is combined with a repetition of such lectures only as will avoid the confusion incident to the simultaneous presentation of so many parts of the general subject. The aim is to dismiss no subject until its relations to other parts of the course can be thoroughly appreciated.

SCHEDULE OF STUDIES[*]

FIRST YEAR

Subjects	FIRST SEMESTER	*Hours*
Embryology,		51
Osteology,		34
General Chemistry,		85
Prosthetic Technics,		360
Histology (laboratory),		160

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[*] The column of hours gives the total number of hours of work required for each semester. The actual teaching weeks, exclusive of vacations and holidays, are 34 for the session, or 17 for each semester.

SECOND SEMESTER

Subjects	*Hours*
Histology,	51
Organic Chemistry,	85
Descriptive and Regional Anatomy	34
Prosthetic Technics,	360
Qualitative Chemistry,	160

SECOND YEAR

FIRST SEMESTER

Subjects	*Hours*
Bacteriology,	51
Prosthodontia,	51
Physiology,	85
Operative Technics,	160
Bacteriology (laboratory),	160
Crown and Bridge Technics,	160

SECOND SEMESTER

Subjects	*Hours*
Physiology,	51
Comparative Odontology,	51
Prosthetic Clinic,	160
Dissection,	160
Operative Clinic,	160
Cleft Palate and Orthopedic Technics,	60

THIRD YEAR

FIRST SEMESTER

Subjects	*Hours*
Dental Therapeutics,	34
Oral Surgery,	51
Orthodontia,	17
Crown and Bridge Lectures,	17
Orthodontia Technics	34
Prosthodontia and Orthodontia Clinic,	160
Porcelain Technics,	51
Operative Dentistry Lectures,	34
Operative Clinic,	340

SECOND SEMESTER

Subjects	*Hours*
Dental Therapeutics,	34
Oral Surgery,	51
Crown and Bridge work,	17
Metallurgy,	17
Bibliography and Ethics,	17
Pathology and Surgery Laboratory,	60
Prosthodontia Clinic,	160
Operative Dentistry,	17
Operative Clinic,	340

DESCRIPTION OF COURSES

Anatomy.—Anatomy is studied didactically and practically. A full course in general osteology is taken with the medical classes in the Department of Medicine and Surgery (page 187). A special course of lectures is given to students of dentistry on the anatomy of the head, face, neck, thorax, abdomen, and their contained viscera, and on the nervous and vascular systems. In practical anatomy the same regions are dissected, independent of the medical classes, though under the same demonstrator. The most careful consideration is given to the parts of immediate concern to dental students. The work in anatomy also includes a course of lectures on comparative dental anatomy. The large odontological museum, the gift of the late Professor Ford, which has recently been increased by a large gift from Drs. William and Louis James Mitchell, of London, England, offers exceptional opportunities for this work. There is also a course in human dental anatomy, which is in the nature of a series of quiz and laboratory exercises on the technical anatomy of the face and mouth; exercises in cutting and studying the structures of human teeth in sections; and an inspection and discussion of the characteristic differences in animal dentition.

Embryology and Histology.—In general embryology and histology a three-hour lecture course, running through the entire first year, prepares for a laboratory course, in which the student not only acquires a knowledge of the principal structures and tissues of the animal body, but also becomes familiar with the manipulation of the microscope and the preparation of tissues.

Chemistry.—In chemistry students are required to attend separate lecture courses on general and organic chemistry, and also to take a laboratory course in analytical chemistry.

Physiology.—A full course of lectures in physiology is taken in connection with the classes in the Department of Medicine and Surgery.

Bacteriology.—The course in bacteriology comprises lectures and laboratory work. In the laboratory the student becomes acquainted with technical methods and acquires experience in the biological study of the micro-organisms which are of especial interest to the dentist.

Materia Medica and Therapeutics.—In dental materia medica and therapeutics a special course of lectures embraces the history, pharmacy, pharmacology, and therapeutics of all drugs and remedies used in the treatment of diseases occurring in dental practice, and includes a discussion of pain obtundents, local and general anæsthetics, and prophylactic remedies.

Pathology and Surgery.—In dental pathology and surgery a course of lectures embraces a discussion of the various diseases which affect the teeth and mouth, and their etiology and treatment. Special attention is given to diseases which pertain especially to the practice of dentistry. Illustrative cases are shown and operated on in the presence of the class. All instruments, appliances, and methods that are of interest or value in this connection are exhibited and discussed.

Oral Surgery.—A course of lectures on clinical oral surgery, supplemented by a laboratory course on the cadaver and manikins, embraces a consideration of diseases of the mouth and associated parts that are of special interest to the dentist, but which lie more within the province of the general surgeon for treatment. Illustrative cases are exhibited and discussed, and operations are performed before the class.

Operative Dentistry.—In operative dentistry the instruction is both didactic and practical. In the didactic course, which is preceded by a course in operative technics, a full presentation of approved methods, appliances, and materials used in filling teeth is given, together with the principles which form the basis of practice. This instruction is supplemented by practical instruction in the clinical operating room, which is under the personal supervision of the professor of operative and clinical dentistry and his assistants. Here each third-year student is required to spend twenty hours a week at the chair, operating for patients, and in this way verifying the principles taught and obtaining such manipulative training as will result in desirable preparation for skillful practice.

Prosthetic Dentistry.—In prosthetic dentistry the instruction is both didactic and practical. In the lectures the principles involved in the construction and application of artificial dentures, crowns and bridges, regulating devices, and continuous-gum and cleft palate work are fully discussed, and such methods as have proved valuable and worthy are advocated. In the practical department each student in the second year has opportunity and is required to construct and adapt to the mouth practical dentures for the restoration of lost dental organs.

The instruction in prosthetic technics embraces experimental construction of the various artificial dentures used to restore lost dental organs. It consists in taking impressions, making plaster models from impressions, making dies, swedging plates, grinding and adjusting teeth, soldering and finishing, vulcanizing and finishing plates, pouring and finishing cast metal plates, and constructing various styles of crowns, bridges, and regulating devices, with such instruction as will familiarize the student with the most approved methods of doing such work.

EXAMINATIONS

At the end of each semester examinations are held on all subjects taught during the semester. Students *conditioned* must remove the condition during the semester following the one in which it was received. No student who, at the end of a year, has failed to pass in two of the required subjects in his course is admitted to an advanced class during the first semester of the following year.

REQUIREMENTS FOR GRADUATION*

To be admitted to the degree of Doctor of Dental Surgery, the candidate must be twenty-one years of age, must possess a good moral character, must have devoted three years to the study of dentistry, and have passed all the examinations required in his course. Unless admitted to advanced standing, he must have attended three full years in this college, and he is advised to attend these consecutively.

GRADUATE COURSE

The purpose of the graduate course is to meet the requests of students for further opportunity to pursue the scientific branches of the regular college curriculum, and also to meet an often expressed wish on the part of practitioners to pursue some special scientific investigation, which has been entered upon at home, with limited resources in the way of books of reference, laboratory facilities, and apparatus, and without the aid of instructors or advisers in associated sciences.

The graduate course is open only to graduates of this college who have made marked records in their undergraduate work, and to graduates of this and other colleges who have had at least two years of continuous practice since graduation, and who have published original articles of scientific value, which show a capacity on their part for continuing such work with credit.

The course of study is independent of, and additional to, the regular undergraduate work, and embraces only such topics as will aid in training men to carry on scientific researches in subjects associated with practical dentistry, or with dentistry in its scientific aspect.

The time required to complete the course prescribed for the advanced degree depends upon the diligence and capacity of the student, but at least a year's work is required in all cases.

Graduate students are required to pay the same annual fee as undergraduates, and those who have not previously been matriculated in this University are also required to pay the usual matriculation fee. The expenses of the laboratory courses vary according to the character of the work taken.

The degree of Doctor of Dental Science (D.D.Sc.) is conferred only upon graduate students who complete the prescribed course as outlined above, or a course embracing an equivalent amount of scientific work.

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*See footnote on page 253.

FACILITIES FOR INSTRUCTION

For general information relating to the University libraries, museums, laboratories, hospitals, and gymnasiums, see pages 28 to 42, 199 to 203, and 247 to 249.

Among the facilities of special interest to students of dentistry the following may be mentioned:

FORD-MITCHELL MUSEUM

The dental museum is supplied with a large number of anatomical, physiological, pathological, and histological preparations, including a series illustrating dentition from infancy to the completion of the process in the adult, and the normal changes through life to old age, and also illustrative of the dental and osseous tissues. Preparations, natural and artificial, greatly facilitate the study of the nervous and vascular systems. The design is to make available every practicable appliance in this direction.

The odontological collection is probably the largest and best of its kind to be found in any dental college in the world. It comprises the entire set of crania and odontological specimens presented by the late Professor Ford, and has been recently more than doubled in size and in value by the gift of the private collection of Drs. William and Louis James Mitchell, of London, England, who have spent many years and large sums of money in bringing together material from all quarters of the world. Additions to this collection are desired, and gifts of material illustrating comparative odontology and typical or abnormal human teeth, will be gratefully received.

TAFT LIBRARY

A library of dental science (named in honor of the late Professor Jonathan Taft), containing almost every known work on this specialty, including an almost complete file of every dental journal published, is shelved in the dental building, where it is accessible to all students. A finely appointed reading room is connected with the library. Sixteen dental journals are regularly received.

TECHNIC LABORATORY

This laboratory has been recently refitted. It contains furnaces, soldering tables, rolling mill, and electric lathes; appliances for the various manipulations of prosthetic dentistry, such as the construction of artificial dentures in gold, continuous gum, silver, aluminum, rubber, and other bases; appliances for the regulation of teeth and for the mechanical treatment of oral deformities; and facilities for the manufacture of instruments. The laboratory has accommodations for two hundred students at a time. Attention is given to the manipulation and management of the precious metals with reference to their use for dental purposes.

Each student is furnished a bench containing a cupboard with lock and key for the instruments that he has to furnish for the prosecution of his work. If a student has any of these instruments it would be well to bring them; but it is more desirable to defer purchasing until the advice of the instructor in the college has been secured, as it is desirable that a complete and uniform outfit should be in the possession of each student. This outfit costs about forty dollars, and if taken care of will be a permanent investment, as the tools will all be necessary and useful in practice. These tools must be purchased at the beginning of the course, as they are required during the first as well as during the succeeding years.

DENTAL OPERATING ROOMS

The operating rooms are large, well-lighted, heated, and ventilated. The main room contains fifty modern operating chairs, with extension brackets and movable tables with drawers for instruments. Other rooms contain chairs and apparatus for the administration of anæsthetics, for the extraction of teeth, and for other purposes Each student is required to supply himself with a dental engine and a full set of operating instruments; these must be purchased with the advice of the instructor, and will cost about one hundred dollars. Like the laboratory tools, they will be necessary to begin practice, and if carefully used will last many years; consequently care should be exercised in their purchase. They need not be purchased until the last quarter of the second year.

COURSES IN OTHER DEPARTMENTS

Those who can command the time, may also avail themselves of numerous lectures, or pursue elective studies, in the Department of Literature, Science, and the Arts (page 49); or may attend special lectures in the Department of Medicine and Surgery (page 187), such as those on gynæcology and the diseases of children, or on other subjects that are important to the practicing dentist.

TEXT-BOOKS

A list of the text-books used and recommended is given in the special Announcement of the college, copies of which will be sent on request.

FEES AND EXPENSES

The Matriculation Fee and the Annual Fee must be paid in advance, and no seat will be assigned to a student until after such payment. Except by order of the Board of Regents, no portion of these fees can be refunded to students who leave the University during the academic year.

Matriculation Fee.—For Michigan students, *ten dollars;* for all others, *twenty-five dollars.*

Annual Fee.—For Michigan students, *thirty-five dollars;* for all others, *forty-five dollars.*

Laboratory Expenses.—*Chemical Laboratory.*—Students are required to pay for the materials and apparatus consumed by them. The average expense for the required course is about *ten dollars. Histological Laboratory.*—A charge of *seven dollars* is made for material used in this laboratory. *Bacteriological Laboratory.*—A charge of *fifteen dollars* is made for the expenses of the course in this laboratory. *Anatomical Laboratory.*—A charge of *ten dollars* is made for material used in dissecting. *Operative Surgery.*—The fee for this course is *five dollars.*

Incidental Expenses.—A charge of *three dollars* a year is made against each student to cover the cost of supplies and equipment provided by the University. The expenses for incidentals, teeth, rubber, and other material needed in the technical courses, but not supplied by the University, are about *fifteen dollars.*

The average total expenses of a student of dentistry, including University fees, board, books, etc., for the college year of nine months, are three hundred dollars, and upwards, depending on individual habits and tastes. The cost of instruments and tools, amounting to about one hundred and fifty dollars for the entire course, is not included in the above estimate, for the reason that it is not properly a college expenditure, the tools being available and necessary in future practice.

To avoid embarrassment, new students should come prepared to spend during the first week about $125, if residents of Michigan, or $150, if not residents of Michigan, for University fees, books, and tools.

Additional information in regard to expenses may be found on pages 47 to 48.

Summer Session

A special Announcement of the Summer Session, containing further particulars than are here given in regard to the courses of instruction, etc., is published annually. Copies of this Announcement can be had by addressing Mr. James H. Wade, Secretary of the University.

In the Summer Session of the University courses of instruction are offered, at present, in the Department of Literature, Science, and the Arts, the Department of Engineering, the Department of Medicine and Surgery, and the Department of Law. The work of the session has been recently reorganized with a view of coordinating more closely the courses conducted in the several departments and of giving the student a wider range of choice than has been found practicable in previous years.

In the Department of Literature, Science, and the Arts, and the Department of Engineering, the general supervision of the work is in charge of a committee appointed by the Board of Regents. The chairman and secretary of this committee are Professor JOHN O. REED and Assistant Professor JOHN R. EFFINGER. In the Department of Medicine and Surgery and in the Department of Law the work is under the direction of the Dean and the Secretary of the department.

In the summer of 1905 the session will open on Monday, June 26, and continue for six weeks, except in the Department of Law, where it will continue for eight weeks.

ADMISSION AND REGISTRATION

There are no stated requirements for admission to the Summer Session, but persons desiring credit for work done must satisfy the conditions for entrance to the University before such credit can be counted towards a degree. A record is kept, however, of all work of university grade done by students, and such work may be applied towards graduation at any subsequent time when the student becomes a candidate for a degree. The courses of study offered are open to all persons who are qualified to pursue them to advantage and who conform to the general regulations of the session.

Each student is required to register in the department in which the major part of his work belongs, and to pay in advance the tuition fees prescribed in that department. In case he also takes work in another department he is required to pay an additional tuition fee of five dollars for each course taken in such other department, but in no case will a charge of more than twenty-five dollars be made for tuition.

FEES AND EXPENSES

In the Department of Literature, Science, and the Arts, the uniform charge for tuition for the session is fifteen dollars, irrespective of the number of courses taken in the department.

In the Department of Engineering an instrument fee of ten dollars is required of all students who take the summer field work in surveying. The other courses prescribed for graduation in the department, that are given during the summer session, are open without extra charge for tuition to students regularly enrolled in the department.

In the Department of Medicine and Surgery, the fee for a clinical course, taken by itself, is twenty-five dollars. For all the other courses, the tuition fee is fifteen dollars.

In the Department of Law, the fee for a single course, taken by itself, is ten dollars; but students who take three or more courses in this department are held to the payment of twenty-five dollars only for the session.

Laboratory and demonstration fees, when required, are to be paid in addition to the regular tuition fee.

For additional information in regard to expenses see pages 47 to 48.

COURSES OF INSTRUCTION

The courses of instruction are arranged to meet the wants of several classes of students. In a general way, they may be classified as preparatory courses, special or technical courses, collegiate courses, and graduate courses. The preparatory courses are designed to aid students who, for any reason, desire to review their preparatory studies before entering upon regular university work. The special or technical courses are intended to aid teachers, lawyers, and physicians in actual practice. The collegiate courses are for students regularly matriculated in the University, and for such other persons, properly qualified, as wish to become candidates for a degree; under the conditions stated below these courses may be counted toward satisfying the degree requirements. The graduate courses are given under the direction of a committee of the Administrative Council of the Graduate School. They are open to graduates of any reputable college or university who, in the judgment of this committee, are competent to enroll for a higher degree. In addition to the graduate courses regularly announced, work along special lines is arranged by the several professors to meet the needs of individual students.

The courses offered for the session of 1905, with the names of the instructors, so far as arranged at the time of printing this Calendar, are enumerated in the following schedules:

I. DEPARTMENT OF LITERATURE, SCIENCE, AND THE ARTS

In the descriptions of courses here given, the terms *two hours, four hours, six hours,* etc., indicate the amount of credit assigned to the course. If no mention of hours is made, it is understood that the course is not entitled to credit toward a bachelor's degree.

Each full course of study, except when otherwise specified, comprises thirty lessons, one hour each day for five days in the week.

The right is reserved to withdraw any course not taken by at least five students.

GREEK

1. Rapid Reading Course in Homer's Iliad. *Two hours.* Dr. Stuart.

1*a*. The same as Course 1, except that the requirements in translation will be adapted to beginners. This course will be accepted as the equivalent of the University entrance requirement in Homer. Dr. Stuart.

2. Xenophon and Greek Prose Writing. *Two hours.* Dr. Stuart. Course 2 meets the entrance requirement in Xenophon and Greek prose writing.

3. Teachers' Course in the Anabasis. *Two hours.* Dr. Stuart.

4. Comparative Studies in the Greek Drama. The *Antigone* of Sophocles and the *Medea* of Euripides. *Two hours.* Dr. Stuart.

LATIN

1. Beginning Latin. Double Course. Dr. Meader.

2. Latin Writing. Translation of English into Latin, with rapid review of the Latin grammar. Dr. Meader.

3. Caesar's *Gallic War.* Dr. Meader.

4. Roman Constitutional History and Provincial Administration. *Two hours.* Professor Drake.

5. Roman Literature. *Two hours.* Professor **Drake.**
6. Rapid Reading of Easy Latin. *Two hours.* Professor **Drake.**
7. The Latin of the Secondary Schools. Lectures. *Two hours.* Professor **Kelsey.**

FOR GRADUATES

8. Proseminary in Roman Institutions. Professor **Drake.**
9. Lucretius. Professor **Kelsey.**

FRENCH

1. Beginners' Course. See Department of Engineering.
2. Modern Prose. Rapid Reading. *Two hours.* Assistant Professor **Effinger.**

FOR GRADUATES AND UNDERGRADUATES

3. Advanced Course in Composition. *Two hours.* Assistant Professor **Effinger.**

FOR GRADUATES

4. The Literary Movement of the Nineteenth Century. *Two hours.* Assistant Professor **Effinger.**

ITALIAN

1. Beginners' Course. Grammar, reading, conversation. *Two hours.* Professor **Levi.**

SPANISH

1. Beginners' Course. Grammar, reading, conversation. *Two hours.* Professor **Levi.**

GERMAN

1. Modern Prose. *Two hours.* Dr. **Florer.**
2. German Conversation. *Two hours.* Dr. **Florer.**
3. German Composition. Advanced Course. *Two hours.* Assistant Professor **Hildner.**

FOR GRADUATES

4. Advanced Course in German Composition, or Essay-writing. *Two hours.* Assistant Professor **Diekhoff.**
5. Goethe's Dramas. *Two hours.* Assistant Professor **Hildner.**
6. Schiller's Dramas. *Two hours.* Assistant Professor **Hildner.**
7. German Literature of the Nineteenth Century. *Two hours.* Assistant Professor **Diekhoff.**
8. German Syntax. *Two hours.* Assistant Professor **Diekhoff.**

ENGLISH LITERATURE

1. Outline History of English Literature. *Two hours.* Assistant Professor STRAUSS.
2. American Literature. *Two hours.* Assistant Professor STRAUSS.
3. Shakespeare. Selected plays. *Two hours.* Assistant Professor STRAUSS.

FOR GRADUATES AND UNDERGRADUATES

4. Chaucer. Canterbury Tales. *Two hours.* Professor DEMMON.

FOR GRADUATES

5. Dramatic History and Technique, with special reference to Shakespeare, his predecessors, and his contemporaries. Professor DEMMON.

RHETORIC

1a. Practical Composition. *Two hours.* Mr. MORRILL.
1b. Theoretical and Practical Studies in Description and Narration. *Two hours.* Mr. MORRILL.
2a. Advanced Studies in Structure. *Two hours.* Mr. THOMAS.
2b. Studies in the Theory of Style. *Two hours.* Mr. THOMAS.

ELOCUTION AND ORATORY

1. Exercises in Vocal Culture. Elements of quality, force, pitch, and time. *Two hours.* Professor TRUEBLOOD.
2. Shakespearean Reading. Two plays. *Two hours.* Professor TRUEBLOOD.

HISTORY

1. General History of England. From the accession of Henry VII to the end of the Stuart dynasty. *Two hours.* Assistant Professor CROSS.
2. Colonial History of the United States. *Two hours.* Dr. CORWIN.
3. The Civil War and the Period of Reconstruction. *Two hours.* Dr. CORWIN.

PHILOSOPHY

GENERAL PHILOSOPHY

1. Introduction to General Philosophy. Lectures, reading, discussions, written exercises. *Two hours.* Professor LLOYD.
2. Problems of Human Conduct. *Two hours.* Professor LLOYD.

PSYCHOLOGY

1. Introduction to General Psychology. Text-book. *Two hours.* Professor REBEC.
2. Psychology for Teachers. *Two hours.* Professor REBEC.

FOR GRADUATES AND UNDERGRADUATES

3. Advanced Work in Philosophy. *Credit arranged.* Professors LLOYD and REBEC.

THE SCIENCE AND THE ART OF TEACHING

1. Principles of Education. *Two hours.* Professor ALGER.
2. Introduction to the Philosophy of Education. *Two hours.* Professor WHITNEY.
3. History of Education, Ancient and Mediæval. *Two hours.* Professor ALGER.
4. Theoretical and Critical Pedagogy. *Two hours.* Professor WHITNEY.

POLITICAL ECONOMY

1. Elements of Political Economy. Text-book and lectures. *Two hours.* Professor TAYLOR.
2. Money and Banking. Text-book and lectures. *Two hours.* Professor TAYLOR.
3. Theory of Annuities and Insurance. *Two hours.* Assistant Professor GLOVER.

Course 3 is the same as Course 9 in Mathematics.

MATHEMATICS

1. Geometry. Preparatory course. Text-book: Beman and Smith's *New Plane and Solid Geometry.* Mr. MARSHALL.
2. Elementary Algebra. Text-book: Beman and Smith's *Elements of Algebra.* Assistant Professor GLOVER.
3. Trigonometry. Text-book: Crockett's *Plane Trigonometry. Two hours.* Professor MARKLEY.
4. Algebra. Text-book: Wentworth's *College Algebra. Two hours.* Professor MARKLEY.
5. Analytic Geometry. Text-book: Tanner and Allen's *Analytic Geometry. Four hours.* Mr. MARSHALL.
6. Geometry and Algebra for Teachers. *Two hours.* Professor BEMAN.
7. Calculus. Text-book: Osborne's *Differential and Integral Calculus. Two hours.* Professor BEMAN.
8. Theory of Annuities and Insurance. *Two hours.* Assistant Professor GLOVER.

Course 9 is the same as Course 3 in Political Economy.

9. Mechanics. Elementary Course. Text-book: Ziwet's *Theoretical Mechanics. Two hours.* Assistant Professor GLOVER.

FOR GRADUATES AND UNDERGRADUATES

10. Differential Equations. Text-book: Johnson's *Differential Equations*. *Two hours*. Professor Beman.
11. Projective Geometry. *Two hours*. Professor Markley.
12. Theory of Functions. *Two hours*. Professor Markley.

PHYSICS

1. Physics for Admission to the University. Double Course. Text-book: Carhart and Chute's *Physics*. Mr. Henderson.
2. Teachers' Course in General Physics. Lectures and recitations. Mr. Henderson.
3. Laboratory Work. *Two or three hours*. Dr. Randall.
4. Primary and Secondary Batteries. Lectures, recitations, laboratory work. *Two hours*. Dr. A. W. Smith.
5. Elementary Lessons in Glass Blowing. Professor J. O. Reed and Dr. Randall.

FOR GRADUATES AND UNDERGRADUATES

6. Electrical Measurements. Laboratory work and recitations. Text-book: Carhart and Patterson's *Electrical Measurements*. *Four hours*. Dr. A. W. Smith.
7. Laboratory Work in Heat. *Two hours*. Dr. Randall.
8. Advanced Electrical Measurements. *Three hours*. Dr. A. W. Smith.
9. Sound and Other Oscillatory Phenomena. Lectures, laboratory work, and reading. *Four hours*. Professor J. O. Reed.
10. Theory of Light. Text-book: Preston's *Theory of Light*. *Four hours*. Professor J. O. Reed.

FOR GRADUATES

11. Advanced Work in Light. Text-book: Mann's *Advanced Optics*. *Two hours*. Professor J. O. Reed.
12. Advanced Work in Sound. Laboratory work and reading. *Two hours*. Professor J. O. Reed.

CHEMISTRY

1. General Inorganic Chemistry. Lectures and recitations. *Four hours*. Mr. Higley.
2. Laboratory Work in General Inorganic Chemistry. *Two, three, or four hours*. Dr. Hale.
3. Qualitative Analytical Chemistry. Laboratory work and recitations. *Four, five, or six hours*. Mr. Smeaton.
4. Laboratory Work in Advanced Inorganic Chemistry. *Two to four hours*. Mr. Higley.

5. Beginning Quantitative Analysis. Lectures and recitations. *Four to six hours.* Dr. F. L. DUNLAP.
6. Organic Chemistry. Lectures and recitations. *Two hours.* Professor GOMBERG.

FOR GRADUATES AND UNDERGRADUATES

5*a*. Advanced Quantitative Analysis. *Five hours.* Dr. F. L. DUNLAP.
7. Organic Preparations. Laboratory work and reading. *Two to four hours.* Mr. CONE.
8. Organic Analysis. Analysis of oils, soaps, fats, waxes, food stuffs, etc. *Two to six hours.* Dr. F. L. DUNLAP.
9. Recent Theory bearing upon Analytical Chemistry. Lectures. *One hour.* Mr. SMEATON.
10. Elementary Theoretical and Physical Chemistry. Lectures and recitations. *Two hours.* Assistant Professor HULETT.
11. Laboratory Work in Elementary Physical Chemistry. *Two or four hours.* Assistant Professor HULETT and Mr. DUSCHAK.
12. Theory and Practice of Exact Measurements. *Two hours.* Assistant Professor HULETT.
13. History and Development of Chemical Theory. *Two hours.* Mr. HIGLEY.
14. German Scientific Reading. *Two hours.* Mr. HIGLEY.

PHARMACY

1. Theory and Practice of Pharmacy. Experimental lectures, recitations, and laboratory work. Mr. BLOME.
2. Pharmacognosy, Materia Medica, and Therapeutics. Lectures and recitations. Mr. BLOME.

GEOLOGY

1. Elementary Geology. Lectures and field excursions. *Two hours.* Assistant Professor KRAUS.

BOTANY

1. General Botany. Lectures and laboratory work. *Two or four hours.* Dr. BURNS.
2. Teachers' Course in Field Ecology. Lectures, laboratory and field work. *Two or four hours.* Dr. BURNS.
3. Teachers' Course in Methods and Technique. Lectures, conferences, laboratory work. Dr. POLLOCK.
4. General Biology (botanical). *Two hours.* Dr. POLLOCK.
5. Plant Disease. Lectures and laboratory work. *Two or four hours.* Dr. POLLOCK.

FOR GRADUATES AND UNDERGRADUATES

6. Advanced Course in Ecology. *Two or four hours.* Dr. BURNS.

FOR GRADUATES

7. Research. *Two or four hours.* Dr. BURNS.
8. Independent Work in Plant Pathology. *Credit arranged.* Dr. POLLOCK.

PHYSICAL TRAINING

1. General Gymnastics and Physical Training. Dr. MAY.
2. Corrective Gymnastics. Dr. MAY.
3. Treatment of Emergencies. Dr. MAY.
4. Anthropometry. Dr. MAY.
5. Special Contest Exercises. Dr. MAY.

II. DEPARTMENT OF ENGINEERING

ENGLISH

1*s*. Paragraph and Theme Writing. *Four hours.* Mr. TARBOX.
1*a-s*. Theme Writing. *Two hours.* Mr. TARBOX.

FRENCH

1*s*. Beginners' Course. *Four hours.* Mr. BIRD.
1*a-s*. Beginners' Course. The equivalent of two hours of Course 1*s*. Mr. BIRD.

GERMAN

1*s*. Beginners' Course. *Four hours.* Assistant Professor WAIT.
1*a-s*. Beginners' Course. The equivalent of two hours of Course 1*s*. Assistant Professor WAIT.

DRAWING

1*s*. Geometrical Drawing. *Two hours.* Mr. WILSON.
4*s*. Free-hand Drawing (elementary). *Three hours.* Mr. WILSON.
5*s*. Descriptive Geometry. Text-book: Church's *Descriptive Geometry. Four hours.* Assistant Professor GOULDING.
14*s*. Stereotomy. *Two hours.* Mr. WILSON.
16*s*. Free-hand Lettering. *Two hours.* Assistant Professor GOULDING.

CIVIL ENGINEERING

3*s*. Graphical Analysis of Structures. *Two hours.* Mr. TILDEN.
4*s*. Graphical Analysis of Structures (advanced). *Two hours.* Mr. TILDEN.
5*s*. Strength and Resistance of Materials. *Three hours.* Mr. TILDEN.

SURVEYING

3*s*. Field Work in Camp. Mr. Merrick and assistants.

Except by special permission of the Faculty this course is open only to students who are working for a degree in civil engineering.

MECHANICAL ENGINEERING

4*s*. Boilers. Steam Engines. *Two hours.* Mr. Higbie.

9*s*. Power Measurements and Machine Testing. Laboratory work. *Two hours.* Mr. Higbie.

11*s*. Steam Engineering. Laboratory work. *Three hours.* Mr. Higbie.

ELECTRICAL ENGINEERING

4*b-s*. Dynamo-Electric Machinery. Lectures, recitations, laboratory work. *Four hours.* Mr. Bailey and Mr. Morehouse.

Course 4*b-s* is designed primarily for students in the Department of Engineering, but is open to other students in the Summer Session, with permission of the instructors in charge.

MINERALOGY

1*s*. Elementary Mineralogy. Lectures and laboratory work. *Two hours.* Assistant Professor Kraus.

2*s*. Determinative Mineralogy. Field excursions and laboratory work. *Two hours.* Assistant Professor Kraus.

3*s*. Graduate Course. Assistant Professor Kraus.

METALLURGY

1. Fuel and Refractory Material. Iron and Steel. *Three hours.* Assistant Professor White.

SHOP PRACTICE

The courses in shop practice are under the direction of Mr. W. L. Miggett, Superintendent of Shops, aided by competent assistants in the several lines of work.

1*a-s*. Carpentry. *Two hours.*
1*b-s*. Pattern Making. *Two hours.*
2*a-s*. Blacksmithing. *Two hours.*
3*a-s*. Foundry. *Two hours.*
4*a-s*. Machine Shop. *Three hours.*
4*b-s*. Machine Shop. Advanced Course. *Two hours.*
5*a-s*. Instrument Making. Specially designed for teachers of science or students preparing to teach science. *Two hours.*

III. DEPARTMENT OF MEDICINE AND SURGERY

MEDICINE

1. Clinical Medicine and Diseases of the Stomach. Professor Dock and Dr. Cowie.

SURGERY

1. Clinical Surgery. Professor Nancrede.
2. Demonstration Course in Surgical Technique and Bandaging. Professor Nancrede.

GYNÆCOLOGY

1. Clinical Gynæcologic Diagnosis. Professor Peterson.
2. Diagnostic and Operative Gynæcology. Professor Peterson.
3. Operative Gynæcology on the Cadaver. Professor Peterson.

DISEASES OF THE MIND AND NERVOUS SYSTEM AND ELECTROTHERAPEUTICS

1. Laboratory Course in Electrotherapeutics and Radiology. Mr. Willey.
2. Demonstration Course in Diseases of the Mind and Nervous System and Electrotherapeutics. Dr. Solis.
3. Clinical Neurology and Psychiatry. Professor Herdman and Dr. Klingmann.

PATHOLOGY

1. Laboratory Course. Professor Warthin and assistant.

PHYSIOLOGICAL CHEMISTRY

1. Laboratory Course. Mr. Nims.

BACTERIOLOGY

1. Laboratory Course. Mr. Levy.

VERTEBRATE HISTOLOGY

1. Laboratory Course. Dr. DeWitt.

IV. DEPARTMENT OF LAW

The brief courses given in the Summer Session are offered, not as, in any sense, the equivalent of the corresponding courses of the regular session, but as affording to persons who have previously studied the subjects a fitting review to prepare them to ask for advanced standing in the department; and as furnishing to persons who are preparing to take examinations for admission to the bar a valuable drill on the fundamental principles of the subjects offered.

The schedule of work is so arranged that no two exercises are held at the same hour. Each student is expected to take three hours a day of class room work; and no student who has not previously studied law for at least ten months is allowed to take more than twenty hours of instruction a week. But persons who present proper certificates of having spent at least ten months in the reading of law, may, upon application, receive special permission to take such work as they appear able to carry to advantage.

An examination is held in each subject at the close of the course.

The courses of study offered for the summer of 1905 are as follows:

Agency.—Mechem's *Outlines and Cases*. Professor GODDARD.

Contracts.—Anson on *Contracts*. Professor KNOWLTON.

Criminal Law.—Clark on *Criminal Law*. Professor KNOWLTON.

Criminal Procudure.—Clark's *Criminal Procedure*. Professor BUNKER.

Domestic Relations.—Tiffany on *Domestic Relations*. Professor SAGE.

Elementary Law.—Blackstone's *Commentaries*, Books I, II. Professor GODDARD.

Real Property (Elementary).—Blackstone's *Commentaries*, Book II. Professor DRAKE.

Sales.—Tiffany on *Sales*. Professor BATES.

Torts.—Cooley's *Elements of Torts*. Professor BOGLE.

Bailments and Carriers.—Goddard's *Outlines and Cases*. Professor GODDARD.

Bills and Notes.—Bigelow's *Bills and Notes*. Professor BUNKER.

Code Pleading.—Pomeroy's *Code Remedies*. Professor BOGLE.

Common Law Pleading.—Perry's *Common Law Pleading*. Professor BOGLE.

Corporations (Private).—Text-book and Cases. Professor BATES.

Damages.—Mechem's *Cases on Damages*. Professor SAGE.

Equity Jurisprudence.—Bispham's *Equity Jurisprudence*. Professor LANE.

Equity Pleading.—Thompson's *Equity Pleading*. Professor BUNKER.

Evidence.—Greenleaf on *Evidence*, Volume I. Professor LANE.

Partnership.—Mechem's *Elements and Cases*. Professor SAGE.

Quasi-Contracts.—Lectures and Cases. Professor KNOWLTON.

Real Property (Advanced).—Professor BATES.

EXAMINATIONS

Every student desiring credit toward graduation for work done in the Summer Session is required to pass examinations in the courses taken.

CREDIT TOWARD GRADUATION

I. Department of Literature, Science, and the Arts

1. Credit toward graduation with the degree of Bachelor of Arts may be given to students regularly enrolled in the Summer Session, subject to the following rules and regulations:

(*a*) No credit is given save for work that is similar in kind to courses that are regularly offered in the department.

(*b*) Credit is given only for full courses of five hours a week for the session, or multiples thereof. Exceptions to this rule may be made in the case of laboratory courses.

(*c*) The credit to be given for a full course of five hours a week is *two hours,* and for the multiple courses in proportion. In some courses credit for *three hours* or *five hours* may be given for proportional time and work.

(*d*) No student can receive more than *six hours* of credit for work done in any one Summer Session.

(*e*) All credits are reported by the several instructors to the secretary of the executive committee immediately on the close of the session.

2. In some of the subjects of study graduate courses are offered, which may be taken by students properly enrolled, and may be counted toward the requirements for a higher degree. Work of this character is under the direction of a committee of the Administrative Council of the Graduate School.

II. Department of Engineering

The regulations relating to the giving of credit in the Department of Engineering are substantially the same as those in force in the Department of Literature, Science, and the Arts, as given above.

III. Department of Medicine and Surgery

Some of the courses offered are designed for graduates and advanced students only, and cannot be counted among the requirements for graduation. Others are the equivalent of certain portions of the prescribed curriculum, and for these, when satisfactorily completed, credit is given; but no allowance for time can be granted for such work. No student, therefore, can shorten his prescribed term of residence in the University by attending the Summer Session.

IV. Department of Law

Credit in the regular course of the department may be granted for subjects passed in the Summer Session on the following conditions:

The student desiring such credit must, when applying for admission to the regular course, first present the required credentials and satisfy the Dean of the department as to his right to apply for advanced standing in the second-year or the third-year class, under the regulations previously described (see page 210). He will then be given credit for the subjects passed in the Summer Session in which he would be entitled to ask for an examination for advanced standing. Furthermore, the regulations governing admission to the second-year class will be so far modified in favor of students in the Summer Session as to make twelve months of study, ten under a practicing attorney and two in the Summer Session, the equivalent of the fifteen months of study under an attorney required of other applicants.

All students in the Summer Session are entitled to a certificate of attendance (see page 221).

List of Graduates of 1904*

DEPARTMENT OF LITERATURE, SCIENCE, AND THE ARTS

BACHELOR OF SCIENCE

James Gay Butler, as of the Class of 1861 1

BACHELOR OF ARTS

Gertrude Mary Adams
Earl Van Aldridge
Esther Eveline Aldridge
Esther Harriet Alexander, A.B.,
Hastings College
Matilda Eloda Amberson
†Pearl Katheryn Archer
Edith Irene Atkin
†Louis Bennett Austin
Kittie Avery
Cornelius K. Baarman, A.B.,
Hope College
Franc May Bailey
Lucile Bailey
Lena Amelia Barber, B.S.,
Adrian College
Florence Berenice Barnes
†Albert Bauman
Albert Crum Baxter
†Robert Hause Beach
George Wilson Beadle
Angie Maria Beckwith
Nellie Irene Beebe
†Glenn C. Beechler
Frederick Beekel
Grace Mitchell Bell
Neil Isaac Bentley
Minnie Ethel Pratt Berry
Grace Darling Bissell
Divie Bethune Duffield Blain
Richard Arthur Bolt
Isabel Louise Bradley
Charles Orin Briggs
Eliza Broomhall
Alma Brown
Bertram Boyd Brown
Grace Enos Brown
Mabel Delia Brown
Mattie Maude Brown
Maude Ingersoll Brown
James Lisle Bruce
John R. Brumm
Eugene Taylor Brunson
Joseph Laurence Burd
Mary Burr
Fred Burton
Ralph Starr Butler
Lavilla Heacock Campbell
Anna Crosby Cawley
Leroy William Childs
Mary Christine Christopher
†Allan Charles Clapp
Arabel Wilson Clark
B. Milburn Clark
Geneive Worthington Clark
Martha Canfield Clark
Hugh Wallace Clarke
Arthur Brooks Clawson

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*The list of Graduates contains the names of all persons on whom degrees were conferred during the year 1904. A dagger (†) indicates that the degree was conferred at some other time than Commencement.

Herbert Everett Coe
†Lulu Coney
John Leonard Conger
Charles Wilford Cook
Emma Faith Cooper
Leigh Guillot Cooper
Florence Mary Cotton
Mary Belle Cox
Clyde Firman Craig
William Dickinson Cramer
†Belle Honey Croarkin
Leonore Crowell
Cleora Cummings
Leila Blanche Currie
†George Herbert Curtis, A.B., *Albion College*
Agnes Eleanore Densmore
Ida Almirall Dibble
Ruth May Dietz
Florence Gertrude Dillon
Wesley Hugh DuBois
Minnie Duensing
Clara Belle Dunn
Lionel Herman Duschak
Grace Louise St. John Eaton
Charles Wallis Edmunds, M.D.
Merrick Knight Edwards
Sarah Elizabeth Edwards
Abigail Mabel Ely
Blanche Earle Enyart
Charles Fay Erwin
Henry Parsons Erwin
†William Andrew Ferguson
Sedona Lenora Fesenbeck
†Helen Louise Finney
Robert Roland Finster
Ida Marie Fischer
Jennie Deyarmon Fisher, Ph.B., *De Pauw University*
Ora Emelyn Follett
Grace Mary Forster
Lewis Lovatus Forsythe
Squire Fouch
Antonia Louise Freeman
Earl Hazeltine Frothingham
Emma Ellen Fuhrman
Wilbur Newton Fuller
Dora Inez Gage
Blanche Gardner
Charlotte Gerken
†Lloyd Alonzo Gifford
Emma May Goodrich
Marion Goss
Janet Galbraith Goudie
Myron Herbert Gray
†Earl Ralph Lamont Gregg
Jeanette May Gridley
Olive May Gwynne
Raynor Bessac Haeussler
Florence Josephine Hagle
Minnie Olivia Hall
Ernest Milton Halliday
†James Floyd Halliday
Sarah Sager Hardy
Charles Leroy Harpham
Harriet L'éclair Harrington
Helen Amalia Hathaway
Wilfrid Henry Haughey, Jr.
Julia Anna Haynes
Nellie Fern Haynes
Lilian Matilda Headsten
Mary Elizabeth Hedden
William Henry Hedges
Gertrude Mary Heery
John Helfman, Ph.C., B.S. [Phar.]
Charles Almer Helsell
Mary Bartron Henderson
Louise Fasquelle Hennequin
Grace Allena Hills
Hermann Johann Hilmer
Elizabeth Alice Hinchey
Flora Annis Hodge
Mary Cooley Horton
Harvey James Howard
Marion Livingston Hubbard
Walter Fred Hunt
Ruth Agnes Hyde
Caroline Louise Jenks
Lee Royal Jenney
Ralph Edward Jenney
Laura Beatrice Jones
Sara Grace Jones
Grace Kaiser
Wilhelmina Kaiser
Sarah Lorilla Kanouse
Nelson Austin Kellogg
Edith Wilmer Kinnan

Marjorie Kinnan
Allen Marshall Kline
Don DeWitt Knapp
Matthew Kollig
Lewis Ellen Kollock
James Joseph Krouser
Louise Lamb
Austin Lloyd Lathers
Edith Alice Lewis
Joseph Marvin Lewis
Mabelle Lignian
Ray Dudley Lillie
Albert Edward Lucius
Herbert Galen Lull
James Duncan Knapp Lyman
Angela Ida Maas
Eleanor Grace Mabley
Sarah Drake McAlvay
Gerald McCoy
Roderick Duncan MacDonald
Kate Willard McGraw
Fraley McMillan
George Arthur Malcom
Herman William March
†Stephen Codding Mason, Jr.
Catharine Ellen Maxwell
Erle Gray Meeks
Emma Melin
Mark Neal Mennel
Ellis LeRoy Michael
Lewis Scofield Miner
William Daniel Moriarty
Robert Porter Morsman
Ward Davis Morton
Joseph Eugene Murphy
Louise Churchill Nichols
Effie May Niles
Zayda Ruth Noe
Roscoe Charles Olmsted
Gertrude Esther Palmer
Leigh G. Palmer
Edward Foster Parker
Albert H. Parks
Mabel Edith Holmes Parsons
Frank Cleveland Pennell
William Jonathan Pennock
Rozilla Amelia Peters
John Hibbard Pettis
Anna Elizabeth Pinney
Preston B. Plumb
Genevieve Williams Purmort
Hazel Grace Putnam
Sophia Rosetta Refior
Ethel Josephine Rice
William Brownell Roberson
Thomas Brockway Roberts
Norman Meldrum Robertson
Robert Millar Robinson
Clara Roe
Jessie Estelle Rood
Mabel Maria Rood
Gertrude Louise Roper
Bertha Rosenthal
Maurice Edgar Rosenwasser
Margery Scheel Rosing
James Emmet Russell
†Harold Walter Ryland
Claire Mabel Sanders
Amy Eleanor Savage
Fay Catharine Schneider
Walter Edward Schroeder
Howard Lesher Schug
Howard Jackson Seymour
Wilfred Byron Shaw
Angeline Sherwood
Madge Genevieve Sibley
Thomas Allan Sims
Elisabeth Ethel Sinclair
Charles Albert Sink
Eva Lenore Smith
Frank Robert Spencer, M.D.
Helen Jane Spier
Sara Belle Spore
Claude Maurice Stafford
Clara Emma Stanton
Helen McClure Stevens
Mary Christina Stewart
Lotta Lane Stiles
Franc Stone
Willis Gordon Stoner
Henrietta Gibbon Stratton
Arthur Floyd Strome
Ralph Howard Struble
Myra Chase Sturgis
Everett Marlin Sweeley
George Philo Sweet
Earle Reed Swift
David William Thomas

Samuel Emory Thomason
Elizabeth Lockwood Thompson
Harriet Waterbury Thomson
Homer Smith Toms
Frederick John Sherman Tooze
Nelson Elbridge Tousley
Luella Townley
Ora Travis
Esther Moss Treudley
Bessie Alfaretta Trollope
Albert LeRoy Turner
Bertha Adams Tuttle
George Uihlein
Louisa Amelia Van Dyke
Nellie Louise Van Volkenburg
Martin D'Ooge Verdier
Charles Bruce Vibbert
Zaidee Belle Vosper
Bess May Vrooman
Elsie Mae Wagner
Guy Leslie Wait
Dell Warner Ward
Lura Allena Warner
Orie Elmer Wasson
John Edward Watkin
John Wright Watling
George Nathaniel Watson
John Vincent Weadock
†Montgomery Webster
Inis Harriet Weed
Walter Samuel Weeks
Faye Irene Whitman
Mary Ross Whitman
Georgia Griffith Whitmore
Georgiana Wiggins
Verna Eugenia Williams
Gertrude Ethel Wilson
Gwenllian Gwladys Wilson
Emily Porter Wolcott
William Henry Woodley
Herbert Hollingsworth Woodrow
James Anderson Work, Jr.
Harry Ralph Wormley
Rosabelle Veda Wykoff
Grace Evelyn Yerkes 293

MASTER OF SCIENCE

(IN FORESTRY)

Harry Day Everett, A.B.,
Cornell University
Clyde Leavitt, A.B. 2

MASTER OF SCIENCE

Amanda Jane Hamilton, Ph.B.,
Albion College
Karl Wilhelmj Zimmerschied, A.B. 2

MASTER OF ARTS

Robert Louis Benson, A.B.
Helen Louise Bishop, A.B.,
Vassar College
Mollie Drew Butts, A.B.
Erle Elsworth Clippinger, A.B.
Frank Lawrence Cooper, B.S.
†Calvin Olin Davis, A.B.
Carl Conrad Eckhardt, Ph.B.,
Ohio State University
Ralph Henry Elsworth, A.B.
Frances Williams English, A.B.,
Greenville College, A.M., *ibid.*
Jessie Cook English, A.B.,
Greenville College, A.M., *ibid.*
Nellie May Hamilton, A.B.
William D. Henderson, A.B.
Laura Emma Hoffman, A.B.,
Hiram College
Richard Ray Kirk, A.B.
Samuel Bovyer Laird, A.B.
Frank Myers Longanecker, A.B.,
Hiram College
†Beatrix Kate Mary, A.B.,
Olivet College

†Howard Daniel Minchin, B.S.
†Lyman Foote Morehouse, B.S.
Artios Dio Nye, A.B., *Baldwin University*
Genevieve Delony O'Neill, A.B.
Roy Romanzo Peck, A.B.
Luis Marino Pérez, A.B.
Oliver Winfred Perrin, A.B.
Candace Wilcox Reynolds, Ph.B., *Olivet College*
Edward Hildreth Ryder, A.B.
Philip Louis Schenk, A.B.
Frederick William Schule, Jr., B.S., *University of Wisconsin*
Manson Alexander Stewart, A.B.
Donald Clive Stuart, A.B.
Zaida Elvira Udell, A.B.
John G. Winter, A.B., *Hope College*
William Robins Wright, A.B. 33

DOCTOR OF SCIENCE

Frederick Amos Baldwin, A.B., M.D. 1

DOCTOR OF PHILOSOPHY

Harriet Williams Bigelow, A.B., *Smith College*
Frank Arthur Bohn, Ph.B., *Ohio State University*
Alphonso Morton Clover, B.S.
Lewis Ralph Jones, Ph.B.
Adoniram Judson Ladd, A.M.
Ward J. McNeal, A.B.
Edgar Nelson Transeau, A.B., *Franklin and Marshall College* 7—339

DEPARTMENT OF ENGINEERING

BACHELOR OF SCIENCE

(IN MARINE ENGINEERING)

Stuart Bowler Kingsbury
William Edward Post
Vernon Claude Wood 3

BACHELOR OF SCIENCE

(IN CHEMICAL ENGINEERING)

William Henry Allen, Jr.
David Homer Clary
Myron George Doll
Lester Kirchbraun
Harris Phelps Ralston, A.B.
William Seymour
Alfred Holmes White, A.B. 7

BACHELOR OF SCIENCE

(IN ELECTRICAL ENGINEERING)

George Wilsey Blackinton
Eugene S. Brewer
Henry Joseph Clemens
Alfred Carrel Finney
Robert Stephenson Fleshiem
Earl Andrew Forkner

Harry Alvin Harris
Edward Lawrence Hogan
Clarence Lloyd Keller
Oscar Franklin Mead, B.S., *Michigan Agricultural College*
Hubert Howard Montague
John Harris Mustard
George Garrett Thompson
Oswald William Visscher, A.B., *Hope College*, A.B.
William Thomas Walker, Jr.
Otto Christian Walther
Edward August Weiland 17

BACHELOR OF SCIENCE

(IN MECHANICAL ENGINEERING)

Egmont Benjamin Arnold
Bert Wise Bachtel
Walter Aldrich Barrett
George Wilsey Blackinton
James Frederic Bourquin
Grant David Bradshaw
Carl Talcott Cotter
Allan Theodore Dusenbury
Earl Alpheus Finkbeiner
David Ross Fraser, Jr.
Charles Arthur Fuller
Thomas Griswold Gale
John Antony Garrett
George Woodbury Gilkey
Arthur Crandell Green
Mark Harris Gregg
Morris Albert Hall
William Manville Hogle
Arthur Holmes
Walter Francis Kneip
James Elliott McAfee
William Coryell McBain
Henry Eggleso McDonnell
John Royal Mansfield
Walter Babcock Perry
Jesse Towsley Pratt
Lewis Chubb Rogers
Sydney Rumney Russel
Morris Henry Stimson
Charles Roscoe Swineford
Robert Richardson Thomson
John Sherrerd Tyler
Ralph Aaron Vail
William Thomas Walker, Jr.
Edward Northam Walton
Charles Albert Waring
Edward August Weiland 37

BACHELOR OF SCIENCE

(IN CIVIL ENGINEERING)

Santiago Artiaga
John Rogers Bartlett
Carroll Biggs
Valreen Colin Campbell
John Knox Cochran
William George Cook
George Alkmaar Cunningham
Gerrit Cornelius Dooge
Benjamin Douglas, as of the Class of 1882
Harry Pine Drake
Frank Collins Emerson
John Edward Evans
Herbert Spencer Graver
Bertram V. R. Hall
Rolland Servis Hall
Max Philip Heavenrich
Harold Hooker
Samuel Horner
William O. Houston
Cortes Johnson
Harlow Lewis
Fred Mussey McLean
William Joseph Matthews
William Burgess May
William Clyde Mundt
†Leon Alfred Paddock
Birtram Willard Ranson
John William Seens
Carl Hamlin Smith

Walter Pearce Stine
Juan Felix Roura Tecson
Donald Cramer Waite
John Arnon Whiting
†Carlos Arthur Williston
Jesse Clark Wright
Arton Emory Yokom 36

MASTER OF SCIENCE

Austin Perry Biggs, B.S.
George Grant, Jr., B.S. 2

ELECTRICAL ENGINEER

Sergius Paul Grace, B.S.
John Castelar Parker, B.S., A.M.
Henry Lumsden Woolfenden, M.S. 3

MECHANICAL ENGINEER

William Lincoln Miggett, B.S. 1

CIVIL ENGINEER

Clarence William Hubbell, B.S.
Rollo Glenroy Manning, B.S.
Alfred Latimer Newton, B.S.
Frederick Charles Noble, B.S.
4—110

DEPARTMENT OF MEDICINE AND SURGERY

DOCTOR OF MEDICINE

Edward William Adamson
Axcel Engelbert Anderson
Edward M. Anderson, A.B., *Williams College*
Kathleen Anderson
Abel James Baker
David Elijah Beardsley, A.B.
Arthur King Bennett
Charles Lenzo Bennett
Adolphus Lyman Biggs
Thomas Francis Birmingham
Ernest Brennan Bradley, A.B., *Kentucky University*
Stephen Dolphard Brazeau
Dexter Alvin Buck
William Henry Buskirk
William Garretson Carhart, A.B.
Arthur Julius Carlson
Addison Bertram Clifford, A.B., *Western Reserve University*
Otis Merriam Cope, A.B.
Charles Vernon Crane
William Henry Crede
John Hunt Crosby, A.B.
Irving John Cross, A.B., *Oberlin College*
Jenny English Crozier
Clara Marie Davis, A.B.
John Joseph Donoghue
Phebe Van Vlack Doughty, A.B., *Vassar College*
Guy Melville Dunning
Ward Ellis
William Henry Enders
Curtis Alban Evans, A.B.
Earl Harland Foust
Cyrus Bunting Gardner
William Clement Gibson
Edward Chace Greene, A.B., *Yale University*
Willard Parker Greene
Cyril Herbert Haas
William Worth Hale
Elizabeth Adams Hawley
Samuel Reese Haythorn
Herman Augustus Helming

Charles Markham Hensley
Lewis Starks Hodges
Emile Cyrus Houle
Maro Fredd Hunn
Samuel Khacher Jamgotchian A.B., *Central Turkey College*
Fred Andrew Johnson
Roy Howard Johnson, A.B.
Harrison William Jones
Charles Floyd Jump
David Maurice Kane
Charles Edgar Keeler
Guy Charles Keller
Lee Earl Kelsey
William Harrison Kennedy
Mary Augusta Killeen
Carl John Larson
Clyde Archie Leonard
Iva May Lickly
Stellar Rudolph Light
Jesse Durland Mars
Albert Harvey Miller
Owen Joseph Mink, A.B.
James Frederick Munson, A.B.
Norman Dwight Murphy
Byron Deloss Niles, A.B., *Olivet College*
Harry Montgomery Nuttall
Lydia Marian O'Harrow
Christopher Gregg Parnall, A.B.
Alex H. Pearson
Elsie Seelye Pratt, B.L., *Smith College*
Harcourt Hayden Ptolemy
Roy Woodney Quick
Elias Wilber Reed, B.S., *Kansas Agricultural College*
George Girard Richards
Bertolet Perry Rosenberry
Mary Louise Rosenstiel
Augustus Henry Halyard Roth, A.B.
Guy Victor Rukke
Walter Abner Scott
George Arthur Seybold
Francis Marion Shook
Harold Leon Simpson
William Barton Skelton
Frank William Smithies
Charles Delos Stofer
Albert Edward Stripp
Charles Theophile Sturgeon
Earle Reed Swift, B.S., *Olivet College*
Charles Frederick Tenney, Jr.
Bert Thomas, B.S., *Whitman College*
Leland Herbert Tower
William Philip Ultes, A.B., *Wittenberg College*
Elmer Carl Unckrich
Don C. Urie
John Walter Vaughan, A.B.
Charles Christian Walker
Ernest Carl Weirick
Carl Herbert Weisman
Clarence Robert Wilcox
William Wesley Wright
Alford Elihu Wooster Yale 101

DEPARTMENT OF LAW

BACHELOR OF LAWS

†Alexander Alla
Edgar Rich Ailes
Harry Albert Allen
Andrew Frederick Allyn
Curtis DeWitt Alway
William Alfred Anderson, B.L., *Kentucky University*
Henry Wood Axford
David Alexander Badenoch
Arthur Bailey, Ph.B., *Colorado College*
Fred Alva Baker
Wirt Barnhart
Ortha Orrie Barr
Roscoe Jerome Barrett
Charles Stacey Batt

Carleton Wood Benton
Nathaniel George Berridge
John Chester Bills, Ph.B.
Edgar Marcus Blessing
Herbert Ray Bliss
Clarence Newton Boord
Charles Orland Borst
Raymond Edward Bowkley
Francis Jacob Bowsher
Ezra Brainerd, Jr.
Frank Michael Brennan, A.B., *Detroit College*
John Wesley Breining
Charles Henry Brittenham
Isaac Louis Brock
†Benjamin Franklin Brown
William Cummins Brown
Frank Nathan Burns
Warren Booth Burrows
James Clinton Byers
Joseph Michael Callahan, A.B., *St. Viateur's College*
Maurice Raymond Carter, Ph.B., *Upper Iowa University*
Warren Norris Chase
William Henry Harrison Clayton, A.B.
Theodore Miles Clowes
Edson W Coale
James Milton Cobb
Corie Cornelius Coburn
Alexander Martin Cochrane
Thomas Porter Miller Compere
Harry James Compton
Daniel Arthur Cook
Frederick Charles Cook
Charles Robert Coulter, A.B., *Miami University*
John Charles Davis
Robert Burns Dawson, A.B.
Edward Harris Decker
James Herbert DeVine
Margaret Noble Dickinson
Irving James Dodge
Edward Donnelly, A.B., *Yale University*
†Franklin Roy Dove, B.L., *Ohio Wesleyan University*
Roy Ralph Durham
Charles Edward Dvorak, A.B.
William Albert Eldred
David Booth Eppstein
Lewis George Erb
Lloyd Hugo Eriesson, A.B.
Glenn Roy Clinton Faling
Thomas LeBeau Fekete
Abram Henry Felker, A.B.
Howard Malcolm Findley, A.B., *Monmouth College*
Clarence Andrew Fisher
David Beagle Fitch
James Roy Fleming
Frank Morrill Fogg, Jr.
Harriet Freebey
Willis Wells French
Hugh Regnier Fullerton, A.B., *University of Illinois*
Nathaniel Fulton
†George Herman Gabel, B.L., *University of Wisconsin*
Harry Conrad Gahn
Matthew Henry Galt, A.B., *Maryland Agricultural College*
Frank Short Gedney
Fred Peter Geib
James Henry Gernert
Arthur Clarke Goldtrap
Louis James Goodman
Richard Cecil Goodspeed
Otto Fairchilds Freene
Louis David Greenfield
George W. Gregory
Milton Wayman Guy
Walter Ferdinand Haass, LL.B., *Detroit College of Law*
Archie Hahn
John Austin Hall, A.B., *University of Kansas*
Charles Albert Hammond
George Stewart Hanley
Frank Bartlett Hannum
Charles Melvin Harlan
Robert Lee Harrod
Marcus Reuben Hart
Frank Hartman, B.S., *Wilmington College*
Lynn Wallace Hathaway

Elim Jacobs Hawbaker
Jared Waldo Hawkins
Charles Howe Hayden
Earl Heenan, A.B.
Albert Heil
James Buel Henry, B.S.,
Boston University
Charles Hernett, A.B.,
Carleton College
William Martin Heston
Leonard C. Hirsch
†Michael John Hobin
Cornelius Hoffius
Paul Sprenger Honberger
Austin Edward Hooker
Edward Hugh Horton, B.S.,
Buchtel College
Herman H. Hovda
Thomas Burlison Hubbard
Jessiah Ross Huffman
Frank Myron Hughson
Charles Gammon Huse
Roscoe Burhans Huston, A.B.
Emory James Hyde
Elbert Vittum Ingersoll
William Hannibal Jackson
Thomas Johnson
Harrison Johnston, Jr.
†John James Keenan
John Kiiskila
Harry Mahlon Kimball
Tunis Wyckoff Kimber
Donald Franklin Kizer
Fred Christian Klein, LL.B.,
Northern Indiana Law School
Fred Garfield Kline
Walter Michael Krimbill
James Knox Lauher
Eugene Wright Lawton
Frederick Leckie
Walter Clark Lee, A.B.,
Yale University
William Baxter Lee, B.S.,
University of Tennessee
Frederick August Lehman
William Jacob Lehman, A.B.
George Forrest Lewis
†Thomas Addis Lowery
Johann Christof Kloppenburg Lindhout
George McCarty
John Clarence McClure
†Cecil Guy McCollom
Hugh Wilson McGill
Dan Erle McGugin, Ph.B.,
Drake University
Delos Harold McIntyre
Joseph Frederick Maguire
†Edward James Marrinane
Charles Salmon Matthews, A.B.
Guy Metcalf, A.B.,
Harvard University
Frank Rudolph Meyer
Charles Oliver Monroe
Walter Ferguson Morrison, A.B.,
University of Washington
Francis Thomas Nagorski
Guy Percy Nevitt
Louis Nockels
James Rogers Offield
†Donald Cornell Osborn
Leon Edward Paige
Charles Henry Pease
†Eugene Edward Person
†Kennedy Loomis Potter
Celsus Matthews Price
Floyd Fosket Putman
Frank Radigan
Frank Lewis Rain, A.B.,
University of Nebraska
Louis Edward Rauch
Hiram Brown Redford
Mark Webster Reed
Austin Lucius Richardson
Ernest Richard Ringo
Edwin Shepherd Ripley, A.B.
Roy William Risley
James D. Robinson, B.S.,
Upper Iowa University
Morris John Robinson
Clarence Sanford Roots
Howard Bell Salot
Charles Edward Sandall
Wirt Ira Savery, A.B.
Tillman Kulp Saylor
Ralph Burton Scatterday
Marvin John Schaberg

Daniel Dwight Schurtz, A.B.
Eli Fowler Seebirt, A.B., *Mount Union College*
Millard Algernon Seitz
Frank Sylvester Senn
Jay Corwin Sexton
Milo Barton Slick
Edmund Mark Sloman
Joseph Smith, LL.B., *Central University*
Charles Sumner Sollars
Edward Sonnenschein
†Howard Eastburn Spence, A.B., *Monmouth College*
John Mickle Stager
William Riley Stevens
Ethol Wilkes Stone
Bernard Erhart Stoutemyer
Daniel Stratton
†Edwin White Sutton
Charles Dana Symonds
Clay Tallman, B.S., *Michigan Agricultural Coll.*
†Nathaniel Haws Tanner
James Ed Thomas
Frank Abner Thompson
Howard Miller Thompson
James Herbert Thompson
Oscar Benjamin Tibbs, A.B., *Lincoln University*
Miles William Townsend
Harland Adams Trax, Ph.B., *Bucknell University*
Sanford Trippet, A.B., *Indiana University*
John Truax
George Tumpson
James Turner, A.B.
†Leslie Ullrich, A.B.
Elbert Boynton Vandervort, A.B., *Ohio Wesleyan University*
Franklin Allan Wagner
Robert Kelsey Walton
Glenn Elum Warner
Frank Robert Watson
William Monks Webb, Ph.B., *Mount Union College*
Burton Singley Wellman
Walter Steadman Wheeler
Milo Armstrong White, A.B.
†Lester Cook Whitten, as of the Class of 1896
Bernard Charles Wieck
Herman Adolph Wieder
Merlin Ludlow Wiley, A.B.
Samuel Ritter Wilkeson
William Kirkwood Williams, A.B.
Charles Tobias Winegar
Edward William Wolfstyn
Frank Edison Wood
George Wallace Zinky 233

MASTER OF LAWS

George Wilbur Lindsay, LL.B., *University of the South* 1—234

SCHOOL OF PHARMACY

PHARMACEUTICAL CHEMIST

Ambrosio Aguilar
Herman Louis Becker, Ph.G., *Detroit College*
Mabel Lucile Berger
Linwood A. Brown, Phar. D., *Louisville College of Pharmacy*
Rollin Harvey Cogswell
Arthur Earnest Crippen
Manuel Mario Guillermety
Edward Henry Miller
John Schell Wehrle
Adolph Ziefle 10

BACHELOR OF SCIENCE

(IN PHARMACY)

Charlotte Gerken
John Alvin Inman
Burton Samuel Knapp
Rudolf Ernest Knapp
James Seymour, Ph.C
Homer Charles Washburn, Ph.C.
6—16

HOMŒOPATHIC MEDICAL COLLEGE

DOCTOR OF MEDICINE

†William Don Brooks
Oscar Cornelius Dixon
William Eck Doran
Leon J. Gibson
Corden Thorne Graham
Awra Andrews Hoyt
†Cecil Jordan
Clyde Allen Lown
Harold Luce Lown
Frederick Webster McAfee
Ferdinand Claudius McCormick, M.D., *Northwestern University*
Arthur Holmes Norton, A.B.
Ebenezer Payne, B.S., *Rhode Island State College*
Luther Peck, B.S., *University of Maine*
Samuel Schaefer, A.B.
Howard Francis Schell
James Wallace Sooy
Charles Frederick Swift
†William George Weideman
Virgil Lucius Weir
George Pray Winchell
Augusta Genevieve White, B.S., *Bucknell University*
22

COLLEGE OF DENTAL SURGERY

DOCTOR OF DENTAL SURGERY

†Adolph Henry Breitenwischer
John Benedict Conlin
Anna Dieterle
†Guy Harry Dillon
Rudolph Linton Gilkey
Claude Emory Markey
†Glenn Elder Morningstar
John Austen Ogden
†Grace Pearl Rogers
†Arthur Finley Rowley
†Frank Daniel Segur
†Leon Audley Stebbins
†Haygazoon Hagop Tashjian, A.B., *French-American College*
Elmer Leroy Whitman
William Henry Wismer
15

HONORARY DEGREES

MASTER OF ARTS

Charles Lang Freer
Jesse Fonda Millspaugh
James Decker Munson
Gershom Mott Williams
4

DOCTOR OF LAWS

Charles Mills Gayley
Frederick Henry Gerrish
Lawrence Maxwell
Calvin Thomas
4—8

Total number of degrees conferred - - - - - 845

Faculties and Students[†]

Department of Literature, Science, and the Arts

FACULTY

JAMES B. ANGELL, LL.D., *President*
*ALBERT B. PRESCOTT, M.D., LL.D.
MARTIN L. D'OOGE, Ph.D., LL.D., D.Litt.
ISAAC N. DEMMON, A.M., LL.D.
ALBERT H. PATTENGILL, A.M.
WOOSTER W. BEMAN, A.M.
VICTOR C. VAUGHAN, Ph.D., M.D., LL.D.
CHARLES S. DENISON, M.S., C.E.
HENRY S. CARHART, A.M., LL.D.
RAYMOND C. DAVIS, A.M.
HENRY C. ADAMS, Ph.D., LL.D.
RICHARD HUDSON, A.M., LL.D., *Dean*
ALBERT A. STANLEY, A.M.
FRANCIS W. KELSEY, Ph.D.
OTIS C. JOHNSON, Ph.C., A.M.
ANDREW C. McLAUGHLIN, A.M., LL.B.
ASAPH HALL, Jr., Ph.D.
ISRAEL C. RUSSELL, C.E., LL.D.
WARREN P. LOMBARD, A.B., M.D.
JACOB REIGHARD, Ph.B.
THOMAS C. TRUEBLOOD, A.M.
JAMES A. CRAIG, Ph.D.
J. PLAYFAIR McMURRICH, Ph.D.
ROBERT M. WENLEY, Sc.D., LL.D.
GEORGE HEMPL, Ph.D., LL.D.
ARTHUR G. CANFIELD, A.M.

[†] In the following lists a dagger (†) preceding a student's name indicates that he pursued studies, for the whole or a part of the year, in more than one department of the University.

*Deceased.

WILLIAM H. PAYNE, PH.D., LL.D., D.LITT.
FRED N. SCOTT, PH.D.
MAX WINKLER, PH.D.
FREDERICK G. NOVY, SC.D., M.D.
EDWARD D. CAMPBELL, B.S.
ALLEN S. WHITNEY, A.B.
FILIBERT ROTH, B.S.
G. CARL HUBER, M.D.
FRED M. TAYLOR, PH.D.
ALEXANDER ZIWET, C.E.
KEENE FITZPATRICK
MOSES GOMBERB, SC.D.
GEORGE W. PATTERSON, PH.D.
FREDERICK C. NEWCOMBE, PH.D.
JOHN O. REED, PH.D.
ALFRED H. LLOYD, PH.D.
JOSEPH H. DRAKE, PH.D., LL.B.
MORITZ LEVI, A.B.
WALTER DENNISON, PH.D.
EARLE W. DOW, A.B.
LEWIS B. ALGER, PH.B.
JOSEPH L. MARKLEY, PH.D.
CHARLES H. COOLEY, PH.D.
GEORGE REBEC, PH.D.
EDWARD D. JONES, PH.D.
JULIUS O. SCHLOTTERBECK, PH.D., PH.C.
S. LAWRENCE BIGELOW, PH.D.
PAUL R. DE PONT, A.B., B.S., *Registrar*
JOHN A. FAIRLIE, PH.D.
WALTER B. PILLSBURY, PH.D.
JOHN R. EFFINGER, PH.D.
TOBIAS DIEKHOFF, PH.D.
HENRY A. SANDERS, PH.D.
CLAUDE H. VAN TYNE, PH.D.
JAMES W. GLOVER, PH.D.
LOUIS A. STRAUSS, PH.D.
ALFRED H. WHITE, A.B., B.S.
ARTHUR L. CROSS, PH.D.
JONATHAN A. C. HILDNER, PH.D.
GEORGE A. HULETT, PH.D.
EDWARD H. KRAUS, PH.D.
GEORGE O. HIGLEY, M.S.
DAVID M. LICHTY, M.S.
CLARENCE L. MEADER, PH.D.
WARREN W. FLORER, PH.D.
JOHN S. P. TATLOCK, PH.D.
JAMES B. POLLOCK, SC.D.
EWALD BOUCKE, PH.D.
WILLIAM H. BUTTS, A.M.

HUGO P. THIEME, PH.D.
ARTHUR W. SMITH, PH.D.
HARRISON M. RANDALL, PH.D.
FREDERICK L. DUNLAP, SC.D.
SAMUEL J. HOLMES, PH.D.
JOSEPH M. THOMAS, A.M.
CARL E. EGGERT, PH.D.
DUANE R. STUART, PH.D.
RAYMOND PEARL, PH.D.
ARCHIE B. PIERCE, PH.D.
THEODORE R. RUNNING, PH.D.
JAMES E. DUERDEN, PH.D.
LOUIS C. KARPINSKI, PH.D.
LYMAN F. MOREHOUSE, A.M.
PETER FIELD, PH.D.
EDWARD B. ESCOTT, M.S.
WILLIAM MARSHALL, M.S.
MYRA B. JORDAN
HELEN E. BROOKS, M.D.
JOHN DIETERLE, A.M.
ALICE L. HUNT
CARL F. A. LANGE, PH.D.
CHARLES A. DAVIS, A.M.
CLARENCE B. MORRILL, A.M.
JOHN W. SCHOLL, A.M.
GEORGE P. BURNS, PH.D.
CHARLES C. ADAMS, M.S.
ROY R. PECK, A.M.
HARRISON S. SMALLEY, PH.D.
GEORGE L. HAMILTON, PH.D.
WILLIAM J. HALE, PH.D.
RICHARD R. KIRK, A.M.
RICHARD D. T. HOLLISTER, A.M.
CHARLES P. WAGNER, PH.D.
WILLIAM D. HENDERSON, A.M.
CALVIN H. KAUFFMAN, A.M.
JOHN W. BRADSHAW, PH.D.

Other Instructors and Assistants

LIONEL H. DUSCHAK, A.B.
FRANCES J. DUNBAR, A.B.
HOBART H. WILLARD, A.B.
HERMAN W. MARCH, A.B.
ALEXIS C. HOUGHTON
PAUL E. DEMMLER
LEE H. CONE, B.S.

FRANK B. MARSH, A.B.
CHARLES B. VIBBERT, A.B.
ALEXANDER L. TROUT
WILLIAM D. McNALLY
ALFRED DACHNOWSKI, A.M.
SILAS F. SCOTT, PH.C., B.S.
DAVID J. LEVY, A.B.
JOHN F. SHEPARD, B.S.
EDWARD H. RYDER, A.M.
BOYDEN NIMS, PH.G.
ADA L. WECKEL
OSCAR H. WURSTER
FREDERICK W. WILLARD
CARL J. PATER
JOHN F. EASTWOOD, PH.D.
ARTHUR B. CLAWSON, A.B.
WILLIAM J. MARSHALL
BERTRAM G. SMITH
WILLIAM D. MORIARTY, A.B.
ORA TRAVIS, A.B.
NELSON F. MACDUFF
LINWOOD A. BROWN, PH.C.
OSCAR A. EBERBACH
CARLOS P. LONG
HENRY H. ARMSTRONG, A.M.
JOHN S. FOX, A.B.
FRANK J. MELLENCAMP, A.B.
JAMES F. HALLIDAY, A.B.
ALLEN M. KLINE, A.B.
JOHN F. PRESTON
BURTON S. KNAPP, B.S.
S. FRED EDWARDS, M.S.
WALTER F. COLBY, A.B.
JOHN G. WINTER, A.M.

Special Lecturers

FREDERICK J. TURNER, PH.D.
JOHN F. JAMESON, PH.D., LL.D.
ANDREW C. McLAUGHLIN, A.M., LL.B.
ALFRED C. LANE, PH.D.
CARL C. PARSONS, A.B.

STUDENTS

GRADUATES*

NAME	RESIDENCE
Henry Herbert Armstrong, A.B., 1901, A.M., 1902, *Holder of a Classical Fellowship* Latin; Greek; Roman Law	*Ann Arbor*
Cornelius K. Baarman, A.B., *Hope College*, 1903, A.B. 1904	*Zeeland*
Carrie Augusta Barden, B.S., *Upper Iowa University*, 1895 English Literature; Rhetoric; Aesthetics	*Corvallis, Ore.*
Helen Louise Bishop, A.B., *Vassar College*, 1897, A.M., 1904 Latin; Greek; Rhetoric	*Detroit*
Georgiana Cleis Blunt, Ph.B., 1896, Ph.M., 1897 Aesthetics; Metaphysics; Rhetoric	*Ann Arbor*
Wesley Bradfield, A.B., *Alma College*, 1902 Botany; Forestry; Physiological Botany	*Decatur*
George W. Brail, A.B., *Albion College*, 1902 European History; American History; Political Economy	*Concord*
Charles J. Bready, A.B., *Hillsdale College*, 1900, A.B., *Hope College*, 1902 History; History of Philosophy; English Literature	*Hillsdale*
Agnes Ewing Brown, B.S., *University of South Dakota*, 1900 Rhetoric; Aesthetics; Ethics	*South Bend, Ind.*
Orma Fitch Butler, A.B., 1897, A.M., 1901. Latin; Roman Law; Greek	*Ann Arbor*
James Allen Canby, A.B., *Bethany College*, 1896 Ethics; History of Philosophy; Sociology	*Ann Arbor*
Frances Elizabeth Clarke, B.L., 1900 Rhetoric; Anglo-Saxon; Aesthetics	*Albion, N. Y.*
Arthur Brooks Clawson, A.B., 1904 Zoology; Embryology; Statistical Zoology	*Dartford, Wis.*
Charles Robert Cobb, A.B., *Greenville College*, 1903 Sociology; Political Economy; Pedagogy	*Hastings*
Walter Francis Colby, A.B., 1901	*Hart*
Lee Holt Cone, B.S., *Pomona College*, 1901 Organic Chemistry; Physical Chemistry; Physics	*Santa Ana, Cal.*
John Leonard Conger, A.B., 1904, *Holder of the Peter White Fellowship in American History* American History; European History; Political Philosophy	*Hillsdale, Ia.*
Charles Wilford Cook, A.B., 1904	*Fenton*
Alfred Dachnowski, A.B., *Taylor College*, 1897, A.M., *ibid.*, 1900, *Holder of the Angeline Bradford Whittier Fellowship in Botany* Botany; Physical Chemistry; Philosophy	*Ann Arbor*

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*The principal subjects of study pursued by candidates for an advanced degree are indicated under their respective names; the subject first named being the major study.

Hagopos Toros Daghistan, A.B., 1903 *Boston, Mass.*

Frederic Warren Darling, A.B., *Cornell University,* 1902 *Buffalo, N. Y.*
Forest Management; Silviculture; Forest Utilization

Charles Albert Davis, A.B., *Bowdoin College,* 1886, A.M., *ibid.*, 1889 *Ann Arbor*
Botany; Geology; Ecology

Jean Dawson, A.B., 1902, A.M., 1903 *Caro*
Zoology; Animal Ecology; Plant Ecology

Mary Ellen Duffy, Ph.B., 1894 *Ann Arbor*
English Literature; Rhetoric; Aesthetics

Lionel Herman Duschak, A.B., 1904 *Buffalo, N. Y.*

Robert Byrns English, A.B., *University of Rochester,* 1896, A.M., *ibid.*, 1898, *Holder of the Buhl Classical Fellowship* *Buffalo, N. Y.*
Latin; Greek; Ancient Philosophy

Charles Henry Estrich, A.B., *Ohio Wesleyan University,* 1900 *Edon, O.*
American History; European History; Political Institutions

Earl Hazeltine Frothingham, A.B., 1904 *Chicago, Ill.*
Forest Management; Silviculture; Forest Mensuration

Adelaide Gemberling, A.B., 1902 *Ann Arbor*
Physical Chemistry; Physics; Mathematics

Maudelle Margaret Germonde, B.L., *Ohio Wesleyan University,* 1899 *Delaware, O.*
English Literature; Rhetoric; Aesthetics

Carrie May Gilpin, A.B., *Albion College,* 1904 *Stanton*
English Literature; European History; Rhetoric

James Floyd Halliday, A.B., 1904 *Hudson*
American History; European History; Sociology

William D. Henderson, A.B., 1903, A.M., 1904 *Ann Arbor*
Electro-chemistry; Physical Chemistry; Physics

Rufus Percival Hibbard, A.B., *Williams College,* 1899, *Holder of the Dexter M. Ferry Botanical Fellowship* *Gloucester, Mass.*
Botany; Morphology of Algae; Zoology

George Oswin Higley, A.B., 1891, M.S., 1893 *Ann Arbor*
General Chemistry; Physiology; Physiological Chemistry

Cary LeRoy Hill, A.B., 1901 *Chelsea*
Forest Management; Silviculture; Timber Physics

Flora Elsie Hill, B.L., 1899 *Marquette*
English Philology; Rhetoric; Aesthetics

Walter Fred Hunt, A.B., 1904 *Glendale, O.*
Analytical Chemistry; Mineralogy; Commerce and Industry

Genevieve Imus, A.B., 1903 *Ann Arbor*
Organic Chemistry; Physical Chemistry; English

Clara Octavia Jamieson, A.B., 1901 *Ann Arbor*
Botany; Zoology; Pedagogy

Calvin Henry Kauffman, A.B., *Harvard University,* 1896 *Ithaca, N. Y.*
Plant Physiology; Mycology; Organic Chemistry

Allen Marshall Kline, A.B., 1904 *Elsie*
European History; American History; Political Science

William Jacob Lehman, A.B., 1901, LL.B., 1904 *Adrian*
Political Economy; Finance; American History
William Henry Lightstone, Jr., A.B., *Miami University*, 1903, *Holder of the Parke, Davis & Co. Fellowship in Chemistry* *Arkansas City, Kan.*
Mary Joy Lombard, B.L., *Northwestern University*, 1901 *Ypsilanti*
German Literature; German Philology; French Literature
Almira F. Lovell, A.B., 1884 *Ann Arbor*
Herman William March, A.B., 1904 *Ocheyedan, Ia.*
Mathematics; Mechanics; Physics
Frank Burr Marsh, A.B., 1902 *Big Rapids*
European History; Political Institutions; Sociology
Vernon Griffith Mays, Ph.B., *Albion College*, 1894 *Albion*
Pedagogy; Psychology; Sociology
John Edward Mealley, B.S., *Albion College*, 1894 *Plymouth*
American History; European History; Political Science
Frank John Mellencamp, A.B., 1903 *Ypsilanti*
Physics; Mathematics; Analytical Chemistry
Frank Benjamin Moody, A.B., *Bates College*, 1902 *Portland, Me.*
Forest Management; Silviculture; Timber Physics
Lyman Foote Morehouse, B.S. (E.E.), 1897, A.M., 1904 *Ann Arbor*
Physics; Mathematics; General Chemistry
William Daniel Moriarty, A.B., 1904 *Ann Arbor*
Rhetoric; English Literature; Aesthetics
Marion Judith Moulton, A.B., *Mt. Holyoke College*, 1904 *Hartford, Conn.*
General Chemistry; Zoology; Pedagogy
Frances Elisabeth Nichols, A.B., *Middlebury College*, 1900 *Sudbury, Vt.*
English Literature; Philology; Rhetoric
Mabel Edith Holmes Parsons, A.B., 1904 *Ann Arbor*
Rhetoric; Aesthetics; Sociology
Carl Safford Patton, A.B., *Oberlin College*, 1888 *Ann Arbor*
Hebrew; Hellenistic Greek; Philosophy
Allen Steele Peck, Ph.B., *Union University*, 1903 *Batavia, N. Y.*
Forest Management; Silviculture; Forest Mensuration
Clyde Edwin Pickett, A.B., *Hiram College*, 1901 *Ann Arbor*
Ethics; History of Philosophy; Sociology
Arthur McBride Ransom, B.S., 1898, *Alabama Polytechnic Institute*, M.S., *ibid*, 1899 *Newnan, Ga.*
Analytical Chemistry; Organic Chemistry; Mineralogy
Henry Jasper Richmond, A.B., 1902 *Pontiac*
Latin; Greek Archæology; Pedagogy
William Rinck, A.B., *Hope College*, 1900, A.B., 1901, A.M., 1903 *Holland*
James Marion Robb, A.B., *Greenville College*, 1899 *Evansville, Wis.*
Mathematics; Physics

Alexander Grant Ruthven, B.S., *Morningside College,* 1903 — *Ruthven, Ia.*
Zoology; Physiology; Physiography

Edward Hildreth Ryder, A.B., 1903, A.M., 1904 — *Ann Arbor*
American History; European History; Political Economy

Hideo Sakuma, *Doshisha College* — *Tango, Japan*
Finance; Political Economy; Municipal Administration

John William Scholl, A.B., 1901, A.M., 1902 — *Ann Arbor*
German Literature; Germanic Philology; General Linguistics

Roda Selleck, A.B., 1898 — *Ann Arbor*
Latin; Greek; Classical Archæology

John Frederick Shepard, B.S., *Saint Lawrence University,* 1901 — *White Hall, Ill.*
Psychology; Neurology; Philosophy

Elisabeth Ethel Sinclair, A.B., 1904, *Holder of the Newberry Classical Fellowship* — *Port Huron*
Greek; Latin; Classical Archæology

Durand William Springer, B.S., *Albion College,* 1886 — *Ann Arbor*
Municipal Administration; Commercial Law; Political Economy

Carrie Lucile Stone, A.B., 1902 — *Ann Arbor*
Latin; Classical Archæology; English Literature

Ralph Howard Struble, A.B., 1904 — *Ypsilanti*
Physics; Analytical Chemistry; Mathematics

Ninosuke Tanaka, *Peers College* — *Tokyo, Japan*
Political Economy; International Law; Finance

Richard Ryan Thompson, A.B., *South Western Baptist University,* 1899 — *Martin, Tenn.*
French; Italian; Aesthetics

Fred Alfred Tiedgen, A.B., *Olivet College,* 1900 — *Dimondale*
Latin; Greek; Ancient Philosophy

Orrin Edward Tiffany, A.B., 1895, A.M., 1896 — *Greenville, Ill.*
American History; Political Economy; Commerce and Industry

Ole Tonning, A.B., *Luther College,* 1904 — *Decorah, Ia.*
German Literature; Germanic Philology; European History

William John Trachsel, Ph.B., *Buchtel College,* 1902 — *Canton, O.*

Ora Travis, A.B., 1904 — *Ann Arbor*
Latin; Roman Political Institutions; Ancient Philosophy

Victor Clarence Vaughan, Jr., A.B., 1900, M.D., 1902 — *Ann Arbor*
Hygiene; Bacteriology; Physiology

Charles Bruce Vibbert, A.B., 1904 — *Detroit*
History of Modern Philosophy; Philosophy of Religion; Hebrew

Lucia Isabelle Voorhees, A.B., 1902 — *Ann Arbor*
American History; European History; American Literature

Bess May Vrooman, A.B., 1904, *Holder of the Elizabeth A. Rathbone Scholarship in American History* — *Dowagiac*
American History; American Literature; European History

Guy Leslie Wait, A.B., 1904 — *Friendship, N. Y.*
Latin; Greek; Ancient Philosophy

Joseph DeWitt Warner, A.B., *Cornell University,*
1903 *New York, N. Y.*
Forest Management; Forest Mensuration; Silviculture
Anson Harvey Washburn, A.B., *Butler College,*
1898 *Petoskey*
Latin; American History; Pedagogy
Hobart Hurd Willard, A.B., 1903 *Chicago, Ill.*
Physical Chemistry; Organic Chemistry; Physics
John G. Winter, A.B., *Hope College,* 1901, A.M.,
1904, *Holder of a Classical Fellowship* *Holland*
Latin; Greek; Ancient Philosophy
Loura Bayne Woodruff, A.B., 1895, A.M., 1898,
Holder of the Buhl Classical Fellowship *Ann Arbor*
Latin; Greek Archæology; Ancient Philosophy
Edmund John Zavitz, A.B., *McMaster University.*
1903 *Guelph, Ont.*
Forest Management; Silviculture; Forest Mensuration

The following students, enrolled in the Department of Medicine and Surgery, are also candidates for an advanced degree in the Department of Literature, Science, and the Arts:

David J. Levy, A.B., 1902 *Kalamazoo*
Bacteriology; Physiological Chemistry; Hygiene
Harry Norton Torrey, B.S., *Knox College,* 1900,
Holder of the Rockefeller Fellowship in Bacteriology *Creston, Ia.*
Bacteriology; Hygiene; Physiological Chemistry

UNDERGRADUATES*

NAME	CREDIT	RESIDENCE
Arthur James Abbott		*Ann Arbor*
Caroline Farrand Bacon Abbott	98	*Ann Arbor*
†George Fremont Ackley. *e*	S	*Litchfield*
Elmer Adams		*Scottland, Ill.*
Ethel Alice Adams	87	*Chicago, Ill.*
Vera Adamson		*Akron, O.*
James Howard Agnew	30	*Findlay, O.*

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*The figures in the column headed Credit indicate the number of hours of work taken by candidates for a degree prior to the beginning of the current academic year, 1904-1905, and completed without conditions, or credited to them on advanced standing. By an hour of work is meant the equivalent of one exercise a week for one semester. The letter S indicates that the student is pursuing miscellaneous studies without being registered as a candidate for a degree. A dagger (†) preceding a student's name indicates that he also pursued studies, for the whole or a part of the year, in some other department of the University, indicated by an italic letter following the name, to-wit: *e,* Department of Engineering; *m,* Department of Medicine and Surgery; *l,* Department of Law; *p,* School of Pharmacy; *h,* Homœopathic Medical College; *d,* College of Dental Surgery. The letter following the name (without the dagger) indicates that the student is pursuing a combined course, leading to a degree in each of the two departments.

Ambrosio Aguilar, Ph.C.	S	*Santiago, Cuba*
Thomas Negley Aiken		*Pittsburg, Pa.*
Clara Augusta Albrecht	S	*Detroit*
James Frederic Alexander	27	*Grayling*
Herman Pooler Allen	60	*Morenci*
Hugh Pitzer Allen	64	*Tacoma, Wash.*
Mabel Emily Allen	60	*Grand Rapids*
Maude Alene Allen	8	*Pontiac*
Minnie Cleona Allyn	56	*Chelsea*
Charles Wilkins Ambrose	45	*Bay City*
Thaddeus Hoyt Ames, *m*	94	*Kalamazoo*
Eveline Louise Anderson	60	*Houston, Minn.*
Mary Elizabeth Anderson	30	*Sidney, O.*
Nelson Reed Anderson	62	*Portsmouth, O.*
Ralph Morrey Anderson	30	*Bay City*
Harry Horton Andrews	94	*Orchard Lake*
Charles Sumner Andrus, *l*	105	*Hastings*
Charlotte Smith Angstman		*Detroit*
William Boden Anscomb	59	*Detroit*
Effie Jane Armstrong	68	*Lapeer*
Eleanor Armstrong	60	*Fenton*
Harold Hunter Armstrong, *l*	95	*Detroit*
Howard Goodell Armstrong	61	*Ann Arbor*
June Maude Ashley	5	*Ithaca*
Orah May Ashley	14	*Ithaca*
Elsie Ellsworth Atkins		*Escanaba*
Robert Francis Atkins	62	*Escanaba*
Harry Roy Atkinson	88	*Flint*
Sidney Major Auer	93	*Cincinnati, O.*
Blanche Avery	93	*Pontiac*
Jennie Marie Avery	30	*Three Rivers*
Frank Ayres		*Indianapolis, Ind.*
Sarah Abigail Ayres	28	*Rahway, N. J.*
Anna May Bacon		*Pontiac*
Elma Bailey	76	*Ann Arbor*
Lorin Harvey Bailey	59	*Beloit, O.*
Alice Mary Baker	61	*Grand Blanc*
Forrest Ray Baker	29	*Ripley, N. Y.*
Looe D. Baker, Jr., *m*	68	*Spring Lake*
May Louise Baker	8	*Bay City*
Morell Brainard Baker	94	*Hunt, N. Y.*
Warren Baker		*Chicago, Ill.*
Bertha Jane Baldwin	56	*Oxford*
James Stanley Baley	99	*Benton Harbor*
Jessie Ewing Bane	98	*Detroit*
Nina Gordon Bannister	93	*Ann Arbor*
Willard Titus Barbour	90	*Ypsilanti*
Mabel May Barker	S	*Ann Arbor*
George Albert Barnes	42	*Howell*

Mary Susanna Barnes		*Howell*
Orlando Mack Barnes	58	*Lansing*
George William Barnum	87	*Homer*
Rudolph Artillis Bartholomew		*Valparaiso, Ind.*
LeRoy Baumgartl	2	*Chicago, Ill.*
James Harvey Baxter	56	*Oxford*
Ralph Waldo Bayley	91	*Tonica, Ill.*
Francis Ray Baylis	S	*Jackson*
Amos Llewellyn Beaghler	52	*Ann Arbor*
William Waite Beardsley		*Ann Arbor*
Inez Bedel	20	*Jackson, O.*
Charles Leonard Bell		*Clinton, Ia.*
Lucile Bell	87	*Marquette*
Leona Mary Belser		*Ann Arbor*
Ralph Beman	93	*Ann Arbor*
Constance Bement	90	*Lansing*
Minerva Benjamin	93	*Detroit*
Mabelle Marie Bennett, D.D.S.	65	*Ann Arbor*
Daisy Ellen BenOliel	S	*Ann Arbor*
Edward Munroe Benson	30	*Detroit*
Walfred Benson	27	*Traverse City*
Bessie Fidelia Bidwell	30	*Lapeer*
Jean Farland Bilton	S	*Highland*
Lester J. Binswanger		*Saint Joseph, Mo.*
Agnes Elgiva Bird	S	*Ann Arbor*
Rollin Otis Bisbee	20	*Port Hope*
Russell Spencer Bishop		*Flint*
Zella Slater Bissell	91	*Chicago, Ill.*
Harold Blair	30	*Ann Arbor*
Albert Stewart Blakely		*Shelbyville, Ind.*
Howard Walter Blakeslee	41	*Ann Arbor*
Glynn Farnsworth Blanchard	58	*Ann Arbor*
Martha Tarnsey Blatz	88	*Saginaw*
†Frank Walker Bliss, *e*	34	*Niles*
Guy Paul Bliss	30	*Plainwell*
Herbert Ray Bliss, LL.B.		*Plainwell*
Webster Edwin Bliss	14	*Deerfield*
Zina Leigh Bliss, B.S., *Kansas State Agricultural College*	90	*McPherson, Kan.*
Leigh Charles Bloomfield	94	*Jackson*
Ethyl May Blum	26	*Ann Arbor*
Frank Bohr	30	*Troy, Kan.*
Jacob C. Blumer		*Luverne, Ia.*
John Arthur Boice	26	*Lansing*
Bernice Louise Bond	99	*Austin, Ill.*
George Samuel Bond, B.S., *Earlham College, m*	90	*Richmond, Ind.*
Jay Follmer Bond		*Washington, D. C.*
Myrtle Grace Bond	62	*Canastota, N. Y.*

Amy Delphine Bordwell	32	*Jackson*
Oswald Friederich Boucke	89	*Bremerhaven, Germany*
Willoughby Deuel Boughton		*Grand Rapids*
William T. Bovie	84	*Augusta*
Lillian Bowie	S	*Rockford, Ill.*
Bessie Emily Bowman	87	*Duluth, Minn.*
Grace Nellie Bowman	S	*Three Rivers*
Ward Simon Bowman		*Caledonia*
†Guy Bowser, *e*	19	*Goshen, Ind.*
Francis Donald Boyer	26	*Bradford, Pa.*
Lawrence Ray Boyer	62	*Niles*
Mary Griffin Boyle	96	*Maple Rapids*
Bernice Margaret Bradford	S	*Bear Lake*
Merle Harrison Bradish	61	*Lansing*
Glenn Danford Bradley	30	*Kinderhook*
Alfred William Brandt		*Indianapolis, Ind.*
Anna Braudy	50	*Grand Rapids*
Rosa Braudy	20	*Grand Rapids*
Eugenia Marie Bray	60	*Grosse Point Farms*
Dora Brayman	58	*Michigan City, Ind.*
Cecilia Marian Brennan	S	*Ann Arbor*
Page Morse Brereton		*Denver, Col.*
Estelle Charlotte Briggs		*Ann Arbor*
Helen Clara Briggs	30	*Toledo, O.*
Larry Briggs	75	*Manton*
Mabel Satterlee Briggs	65	*Lansing*
Beulah Evangeline Brigham	60	*Grand Rapids*
Breta Manning Brigham	60	*Grand Rapids*
Lotta Belle Broadbridge	60	*Marine City*
Helen Hargrave Brooks	11	*Saginaw*
Anna Broomhall	60	*Ann Arbor*
Cornelius James Brosnan, *l*	91	*Dowagiac*
Alonzo Blaine Brower		*Dayton, O.*
Alfred Orcutt Brown	63	*Bloomington, Ill.*
Frances Brown		*Rockford, Ill.*
Harold Sigler Brown	16	*Brooklyn, N. Y.*
Henrietta May Brown	4	*Jackson*
Loretta Agatha Brown	88	*Port Huron*
Margretta Cheeseman Brown	24	*Ann Arbor*
Eyleen Mae Browne	8	*Pontiac*
Julia Marion Brownell	91	*Kalamazoo*
Ida Marie Brownrigg	93	*Manistee*
†William Benjamin Bryant, *m*	59	*Dayton, O.*
Mary Gertrude Buck	91	*Paw Paw*
Ernestine Louise Buckley	8	*Detroit*
Harold Norton Buckley	60	*Constantinople, Turkey*

Mildred Leah Bucks	89	*Aurora, Ill.*
Olive Bucks		*Aurora, Ill.*
Martha Nancy Bull	30	*Rockford, Ill.*
Rose Emily Bunning		*Cleveland, O.*
George Samuel Burgess	100	*Brighton*
John Edmund Burke		*Iowa Falls, Ia.*
Anna Mary Burkheiser	93	*Ypsilanti*
Alberta Irene Burmeister		*Onekama*
William Henry Burmeister, *m*	98	*Chicago, Ill.*
Florence Edna Burton	92	*Erie, Pa.*
Frederick Harrison Busby		*Marshalltown, Ia.*
Alden Marland Bush, *m*	60	*Denver, Col.*
Elizabeth Margaret Bush	92	*Saginaw*
Guy Frederick Bush	61	*Hudson*
Howard J. Bush, *m*	63	*Fenton*
Fannie Grose Butler	30	*Boston*
Louise Agnes Butler	34	*Marshall*
Archibald Drake Butterfield	59	*Grand Rapids*
George Ernest Butterfield	29	*Bay City*
Isaac Lawrence Butterfield	59	*Grand Rapids*
Anna Beaumont Butz	S	*Jonesville*
Ward Byers	39	*Kansas City, Mo.*
Kenneth James Byrne		*Kansas City, Mo.*
Rodger George Caldwell	22	*Parkersburg, W. Va.*
Hugh Stone Calkins	81	*Allegan*
Raymond Mott Calkins		*Chicago, Ill.*
Annie Hester Campbell	56	*Ypsilanti*
Beth Dearing Campbell	S	*Denver, Col.*
Charles Fuller Campbell	89	*Cleveland, O.*
Henry Munroe Campbell, Jr.	30	*Detroit*
Myrtle Pearle Campbell	60	*Forestville, N. Y.*
Annabel Carey	30	*Upper Sandusky, O.*
Archibald Edward Carey, *l*	94	*Eastlake*
Florence Amelia Carey	25	*Lapeer*
Margaret Carey	61	*Upper Sandusky, O.*
William Arthur Carlile		*Columbus, O.*
Cora Louise Carlson	30	*Bessemer*
Chester Sherman Carney	60	*Bay City*
Robert John Carney	30	*Sturgis*
Kate Hanford Carpenter		*Washington, D. C.*
Flora Fay Carr	90	*Saginaw, West Side*
Henrietta Carr		*Detroit*
Ella Carson	88	*Bay City*
Adeline Beulah Carter		*Guthrie, Okla.*
Earl Bowers Carter	26	*Upper Sandusky, O.*
Katharine Blythe Carter	92	*Atlanta, Ill.*
Thomas A. Casey	S	*Washington, D. C.*
Bessie Cass	38	*Romeo*

Isabella Alexandra Cass	84	*Ann Arbor*
May Elizabeth Caughey	61	*Erie, Pa.*
Leon Leslie Caviness	54	*Battle Creek*
Abigail Boothe Chandler	113	*Corunna*
Ivan Edgar Chapman, *l*	92	*Ypsilanti*
Lulu B. Chase	88	*Onaway*
Archibald Lamont Chubb	93	*Coldwater*
Henry Ward Church		*Saint Joseph*
Ralph Edwin Church	18	*Catlin, Ill.*
Thomas Clancey		*Ishpeming*
Robert Henry Clancy	30	*Detroit*
Earle Hart Clapp	99	*North Rush, N. Y.*
Frank J. Clark	53	*Battle Creek*
Georgia Clark	98	*Claridon, O.*
Herbert Watson Clark, *l*	90	*Las Vegas, N. M.*
John Jerome Clark	S	*Grosse Ile*
Lewis Carlile Clark		*Butte, Mont.*
Mary Ellen Clark	S	*W. Brattleboro, Vt.*
Robert Watson Clark	3	*West Branch*
Lilian Evangeline Cleveland	108	*Chicago, Ill.*
Abby Willis Cobb	62	*Denison, Tex.*
Icy Ellen Cobb		*Denison, Tex.*
Jane Abigail Cochrane	63	*Detroit*
Laura Caroline Cochrane	S	*Greensbury, Pa.*
William Clark Cochrane, *l*	92	*Saint Joseph*
Isaac Stephen Coe		*Centralia, Ill.*
Arthur Charles Cole	30	*Ann Arbor*
Daniel Frederic Cole	S	*Ann Arbor*
Albert Ralph Colgrove	56	*Minneapolis, Minn.*
Mildred Irene Collins	91	*Chicago, Ill.*
Vida Lucile Collins	30	*Bear Lake*
Ward Eugene Collins, *m*	60	*Decatur*
Wilkie Nelson Collins	S	*Alpena*
Alford Hinman Colwell	S	*Sault Ste. Marie*
Leon Clinton Combacker, *m*	60	*Osceola, Wis.*
Nellie Grant Congdon	60	*Chelsea*
Louis Herbert Conger	104	*Grand Rapids*
Maud Emma Conklin	4	*Bradford, Pa.*
Thomas Connery	S	*Zilwaukee*
Helen Julia Converse	63	*Ann Arbor*
Arthur Oliver Cook	96	*Saginaw*
Jessie Rosamond Cook	90	*South Haven*
Cecil Claybourn Cooper	30	*Ann Arbor*
Edith Belle Cooper	88	*Great Falls, Mont.*
Grace Beers Cooper	51	*Owosso*
†Henry George Coors, Jr., *l*	30	*Las Vegas, N. M.*
Lena Marion Copley	22	*Ann Arbor*
Lotta Fayette Copley	96	*Ann Arbor*
Floy Maranda Cortright	30	*Ann Arbor*

Harry Everard Coughlin	67	*Big Rapids*
Mark Wentworth Cowell	76	*Peoria, Ill.*
Frederic John Cowley	17	*Moline, Ill.*
Stanley Cullen Cox		*Holyoke, Mass.*
Clayton Archie Crandall		*Union City*
Olive Melvina Crandall	30	*Brocton, N. Y.*
Lloyd Tremper Crane		*Saginaw*
Ronald Salmon Crane		*Tecumseh*
Floyd William Crawford		*Battle Creek*
John Thrale Creighton		*Springfield, Ill.*
Anne Shannon Creveling		*Bloomsbury, N. J.*
Rebecca Louise Crittenden	64	*Mount Clemens*
Mary Elizabeth Cromwell	92	*Washington, D. C.*
Nellie Cronkhite	90	*Vernon*
Luella Margaret Crook		*LeRoy*
Elwood Croul		*Detroit*
Mae Lavinia Cryderman	88	*Armada*
Alice Louise Currie	30	*Detroit*
Maynie Rose Curtis	94	*Mason*
Charles Phelps Cushing	28	*Kansas City, Mo.*
Arthur Herman Cutler, *l*	61	*Ionia*
James Arthur Cutler	94	*Nora Springs, Ia.*
Harry Hector Dale	76	*Butte, Mont.*
Lily Dale	92	*Butte, Mont.*
Mildred Marion Dalzell	S	*Muir*
John James Danhof, Jr.	30	*Grand Haven*
Mary Adelaide Dann	93	*Westfield, N. Y.*
David Everett Darrah	30	*Heuvelton, N. Y.*
Leo Harvey Darrow	34	*Park Ridge, Ill.*
Charlotte Mae Davenport	90	*Saint Louis*
Vernon Cyrenius David, *m*	91	*Chicago, Ill.*
LeRoy Earl Davidson	60	*Brocton, N. Y.*
Martha Davidson		*Hubbell*
Adelaide Davis		*Fenton*
Edith Davis	66	*Muskegon*
Frank Howard Davis		*Fremont*
Harry Snell Davis	22	*Galion, O.*
Howard Dyer Davis	30	*Toledo, O.*
John R. Davis, Jr.	40	*Mexico City, Mex.*
Mae Emma Davis	S	*Chesaning*
Eva Dawson		*Ann Arbor*
James Dawson	S	*Ann Arbor*
Maud Dawson		*Ann Arbor*
Bessie Elizabeth Day	57	*Houston, Tex.*
Stephen Albion Day, *l*	95	*Washington, D. C.*
Neva Ruth Deardorff		*Richmond, Ind.*
Marjorie Ward Dearing	91	*Ann Arbor*
Grover Cleveland Debre	87	*Michigan City, Ind.*
John William DeBruyn	30	*Holland*

Sarah Sutton DeForest	13	*Ann Arbor*
John Abram DeHollander	91	*Brighton, N. Y.*
Earl Warren DeLano	30	*Allegan*
Paul Edward Demmler	87	*Allegheny, Pa.*
Eleanor Demmon		*Ann Arbor*
Edith May Dennis		*Grand Rapids*
George Bion Denton	30	*Detroit*
William Wells Denton	30	*Detroit*
Florence Anna DesCamp	42	*Detroit*
Charles Gould DeShore, Jr.		*Oxford*
Jules Verne Des Voignes		*Cassopolis*
Clyde Leonard Dew	60	*Hanover*
Alton D. DeWitt	90	*Newberry*
Susan Mabel Diack	60	*Detroit*
M. Everett Dick		*Saugatuck*
Genevieve Roblee Dickerson	26	*Grand Rapids*
Charles William Dickinson	S	*Cleveland, O.*
Andrew Jackson Dighton		*Monticello, Ill.*
Samuel Reed Dighton	27	*Monticello, Ill.*
Harriette May Dilla		*Ann Arbor*
Marie Friedericka Dillmann	16	*Detroit*
Floyd Carlton Dockeray	30	*Grand Rapids*
Elisabeth Jeanne Dodds	36	*Lansing*
Fabian Bouton Dodds	112	*Mount Pleasant*
Meeta Cary Donmall	60	*Niles*
Leland Dale Dornery		*Findlay, O.*
Euclid DeLoss Doty		*Findlay, O.*
Frank Doty, *l*	94	*Pontiac*
Ralph Westcott Doty		*Ann Arbor*
Catherine Louise Douglas		*Calumet*
Edith Belle Dowd	53	*Union Mills, Ind.*
†Chauncey Herbert Dowman, *e*	S	*W. Springfield, Pa.*
Thomas Jefferson Downen, Jr.	65	*Pueblo, Col.*
Martha Downey	8	*Pueblo, Col.*
Margaret French Dresser	32	*Ann Arbor*
Katharine Isabelle Driscoll	23	*Corunna*
Donald Packard Drummond		*South Bend, Ind.*
Robert Morrison Drysdale	60	*Wooster, O.*
Paul Smith Dubuar	30	*Northville*
Charles Bagley DuCharme	73	*Detroit*
Wesley James Dudgeon		*Saginaw*
Avery Allyn Dudley, *h*	60	*Emporia, Kan.*
Gayle Albert Dull		*Stratford, Ont.*
Alice Gertrude Duncan	S	*Thompsonville*
Fred Sylvester Dunham	58	*Morton*
Mary Agnes Dunham	56	*Saint Joseph*
Maude Mabel Durlin	54	*Erie, Pa.*
Willis Fayette Durlin	62	*Erie, Pa.*
Helena Lois Duschak	34	*Buffalo, N. Y.*

George Argo Duthie		*Grand Rapids*
Clifton Glen Dyer	60	*Byron*
Agnes Louise Eaton	89	*Tecumseh*
Edith Adelaide St. John Eaton	26	*Ann Arbor*
Elsa Amanda Eberbach	30	*Ann Arbor*
Leila Ruth Edgar	30	*Brighton*
Edith Black Edmiston		*Cleveland, O.*
Mary Sophia Edwards	60	*Adrian*
Mina Arberdeen Eggleston		*Lowell*
Lucius Walter Elder	91	*Ann Arbor*
Clarence Ernest Eldridge		*Three Rivers*
Myrtle Imogen Elliott	63	*Ann Arbor*
Carl Elmstedt	20	*Moline, Ill.*
Walter Eugene Emery	34	*Pontiac*
Annie Helen Enmark		*Lake Forest, Ill.*
Ethel Snow Erb	60	*Brocton, N. Y.*
Fred Louis Erickson	28	*Escanaba*
Frances Mary Eschenburg	36	*Santa Barbara, Cal.*
Carl Vanstone Essery		*Manchester*
Lewis Alden Estes		*New Castle, Ind.*
Benjamin Ettenson	S	*Leavenworth, Kan.*
Moe Ettenson		*Leavenworth, Kan.*
Frederick Joseph Evans	S	*Ann Arbor*
Oscar Montgomery Evans	S	*Ann Arbor*
Thomas Charles Evans	S	*Ebensburg, Pa.*
Charles Arthur Everest		*Ann Arbor*
Mildred Anne Everest	S	*Ann Arbor*
William Henry Everest		*Ann Arbor*
Mary Frances Farnsworth	102	*Ann Arbor*
Rhoda Pamela Farquharson, *h*	95	*Detroit*
Cynthia Fay	S	*Los Angeles, Cal.*
Josephine Dickerson Fearon	51	*Ironton, O.*
Blanche Dean Fenton		*Escanaba*
Maude Elliott Ferguson	103	*White Pigeon*
John Elgin Fetzer	53	*Denver, Col.*
George Elmer Fidler	42	*Martinton, Ill.*
Roy Edwin Finerty		*Oklahoma, Okla.*
Ralph Arthur Fink		*South Bend, Ind.*
John Crocker Fisher, Jr.		*Elmira, N. Y.*
Elizabeth K. Grant Fitchel	S	*Ann Arbor*
Sophia Fitts	S	*Franklin, Tenn.*
Mary Fides Flanagan	84	*Sagola*
Fred Fleagle	30	*Saint Johns*
Fern Inez Fleming	15	*Detroit*
James Dawson Fleming	69	*Chicago, Ill.*
William Arzo Fletcher		*Ypsilanti*
Hortense Flexner	30	*Louisville, Ky.*
Susan America Florer	26	*Cadillac*
Kenneth Stuart Forbes		*Detroit*

Sarah Powers Ford	S	*Brattleboro, Vt.*
Herman Leo Foster	30	*Chelsea*
Howard Vanton Foulk	26	*Indianapolis, Ind.*
Charlotte Starkweather Fowler	100	*New Haven, Conn.*
Ethelbert Hazelton Fowler	90	*Ann Arbor*
Quincy Marion Fowler	S	*Ann Arbor*
Cousie Fox	89	*Rockford, Ill.*
George Arthur Fox, *l*	90	*Woodland*
Augusta Lisette Franck		*Detroit*
Emanuel George Frank		*Detroit*
Oliver George Frederick	100	*Detroit*
Harold Frederickson		*South Bend, Ind.*
Florence June Freeman	103	*Rock Island, Ill.*
Arthur Joseph Freese		*Galion, O.*
Edward Blakeslee French	19	*Three Rivers*
Ethel Marie French	104	*Ann Arbor*
Walter Dalton Freyburger		*Decatur, Ill.*
Arthur Fist Friedman	22	*Denver, Col.*
Alice Marie Frost	90	*Norway*
Dorothy Henrietta Frost	3	*Bay City*
Lillian Louise Frost	62	*Bay City*
George Newman Fuller	84	*Ann Arbor*
Jean Mary Fuller	30	*Ionia*
Anna Fullerton		*Detroit*
Raymond Charles Fulmer	91	*East Akron, O.*
Mabel Claire Galbraith		*Bluffton, Ind.*
Esson McDowell Gale	45	*Bay City*
Edward Everett Gallup	42	*Jackson*
Blanche Genevieve Gallup		*Jackson*
John Arthur Gamon	99	*Wheaton, Ill.*
Paul Leonard Gardner	90	*Harbor Springs*
Truman Herschel Gass	57	*Washington*
Charles Gatchell	64	*Benton Harbor*
Lily Cecile Gauntlett	90	*Milan*
Pleasant May Geiken	30	*Charlevoix*
James Boyd Gemberling	62	*Three Rivers*
Louise Emily George	96	*Ann Arbor*
Edward Judson German	30	*Detroit*
Grace Gibson		*Malta, O.*
Katherine Gibson		*Malta, O.*
Lloyd Gifford		*Gloversville, N. Y.*
Emily Bernice Gilbert	29	*Newark, N. J.*
Irene Wentworth Gilbert	89	*Ann Arbor*
Luther Orren Gilbert	62	*Detroit*
†Julian Elton Gilkey, *d*		*Plainwell*
Joseph Rogers Gillard, *l*	91	*Sandusky, O.*
Clara Louise Gilmour		*Greenville*
Walter Elias Glas	6	*Cincinnati, O.*
William Gillette Glaspie		*Oxford*

Irma Mary Gleason	62	*Greenville*
†Joshua Bliss Glenn, *m*	60	*Hillsboro, O.*
Jacob Christian Gleysteen	30	*Alton, Ia.*
Genevieve Elizabeth Globensky	22	*River Rouge*
Clara Adele Goheen	102	*Saint Joseph, Mo.*
Lucy Lynn Goodlander	26	*Wabash, Ind.*
Nina Roccena Goodnow	92	*Howell*
Cyrus John Goodrich		*Tekonsha*
Edith Amelia Goodrich		*Detroit*
William Rufus Goodrich	107	*Tekonsha*
David Harold Goodwillie		*Port Huron*
Ermina Barlow Goodyear	14	*Hastings*
George Edward Goodyear	22	*Hastings*
Benjamin Bear Gould	62	*Forestville, N. Y.*
Lena Mary Gould		*Owosso*
William Crozier Gould	34	*Forestville, N. Y.*
Jennie Alice Graber	22	*Ann Arbor*
Mary Cecilia Grace	30	*Marshall*
Harry Searls Gradle, *m*	78	*Chicago, Ill.*
Herbert Graff	30	*Ionia*
Henri Louis Gratton	31	*Detroit*
Ottilie Kunigunde Grauer	18	*Saginaw, West Side*
Chancey Arthur Graves	56	*Ann Arbor*
Hildegarde Mary Grawn	69	*Mount Pleasant*
James Boone Gray		*Dayton, O.*
Fanny May Green	61	*Marquette*
Florence Alice Green	55	*Batavia, N. Y.*
John Edson Green	30	*Hammond, N. Y.*
Lorena Vivian Greene	56	*Detroit*
Elma Virginia Gregg		*Hamilton, Va.*
John Benjamin Gridley	42	*Rochester, N. Y.*
Edith Florence Griffin		*Battle Creek*
Harriett Clare Griffin	24	*Niles*
Katharine Margaret Griffith	61	*Ashton, Ill.*
Otto Frederick Grimm	89	*Alpena*
Ethel Groat	26	*Ann Arbor*
Arthur Thomas Grossman		*Ann Arbor*
Abigail Mae Gue	94	*Saginaw*
Clifford Louis Guest	102	*Detroit*
Grace Lucile Guild	38	*Wheaton, Ill.*
Clare McCall Gundry, *l*	91	*Grand Blanc*
Martha Gurd	85	*Detroit*
Virgil Bray Guthrie		*Ann Arbor*
Ray W. Hadden		*Holland*
Huldah Augusta Haenig	97	*Ann Arbor*
Lida Hafford	94	*Carrollton, Ky.*
Frank Llewellyn Hager	90	*Dayton, O.*
Maude Thelma Hagle	57	*Ann Arbor*
Albert J. Hall	41	*Pontiac*

Helen Hall	22	*Manistee*
Katherine Hall	16	*Manistee*
Linda Estella Hall	78	*Tecumseh*
Rose Kent Hall	28	*Buffalo, N. Y.*
Will Ralph Hall	92	*Pontiac*
Lois Margaret Hallenbeck	65	*Canandaigua, N. Y.*
Elsa Linda Haller		*Ann Arbor*
Edward Orville Ham	30	*Chicago, Ill.*
Robin Lynn Hamilton	88	*Ithaca*
Roy William Hamilton	60	*Detroit*
Edward Percy Hammond	30	*Detroit*
Eugene Teel Hammond, *l*	92	*Lansing*
Harry Emmons Hammond	92	*Ann Arbor*
Harold Webb Hanlon	62	*Williamston*
Charles Ralph Hannan, Jr.	24	*Boston, Mass.*
Walter Randolph Hans		*South Bend, Ind.*
Lena Birgetta Hanson	62	*Ludington*
Edna Wallace Hare	94	*Detroit*
Ethel Euneita Hare	92	*Washington Court House, O.*
Ivan Frederick Harlow		*Ann Arbor*
Esther Harmon	61	*Toledo, O.*
Bessie Winegar Harrington	S	*Bloomington, Ill.*
Lee Winegar Harrington		*Bloomington, Ill.*
Mark Raymond Harrington	S	*New York, N. Y.*
Ben Harris	3	*Salt Lake City, Utah*
Katharine Lucretia Harrow	98	*Detroit*
Edward Houston Harsha		*Chicago, Ill.*
Violet Dosia Hart	85	*Grand Rapids*
Flora May Ramage Harter		*Scottville*
William Lewis Harter		*Scottville*
Carl Floyd Hartmann	28	*Wauseon, O.*
Athelstan George Harvey	30	*Ann Arbor*
Stephen Conger Hathaway	75	*Jackson*
Eva Lenore Hathhorn	30	*Livingston, Mont.*
Louis Kuhns Hawks		*Goshen, Ind.*
Mary Amorette Hawley	60	*Ann Arbor*
Jay G. Hayden		*Cassopolis*
Pauline Jewett Hayes	94	*Ann Arbor*
Lon West Haynes, *m*	60	*Hillsboro, O.*
Edward William Headsten	26	*Escanaba*
Ethel Margaret Heath	39	*Ann Arbor*
Homer Leslie Heath	27	*Ann Arbor*
Frank Pritchard Helsell	62	*Odebolt, Ia.*
Jessie Mae Helsell	94	*Odebolt, Ia.*
Zoraida Lowell Henderson	12	*Jackson*

Herbert Bradley Hendrick	25	*Ann Arbor*
Herbert Hene		*Lafayette, Ind.*
John Edwin Henes	98	*Menominee*
Edward Henkel		*Detroit*
Guy DeVere Henry		*Alpena*
William Blodgett Henry	30	*Mecosta*
Jessie R. Herman	46	*Caro*
William Martin Heston, LL.B.		*Grants Pass, Ore.*
Paul Judson Hewitt		*Grand Rapids*
Helen B. Hicks		*Alpena*
Charles Edward Hill	62	*Ellsworth, Ia.*
Harry Hill	S	*Edinburg, Ill.*
Hazel Gustene Hill	30	*Decatur*
Louise Eva Hills	34	*Lombard, Ill.*
Frederika Lena Hine	91	*Bay City*
Gale E. Hines	20	*Charlevoix*
Grace Florence Hippel		*Coalton, O.*
Robert Ellis Hitch	30	*El Paso, Ill.*
Bessie Myrtle Hitchings	88	*Gardendale*
Nellie Rena Hitchings	S	*Gardendale*
Hazel Mary Hoag	56	*Ionia*
William Gage Hoag	61	*Indianapolis, Ind.*
George Henry Hobart		*Grand Rapids*
John Thomson Hodgen	50	*Saint Louis, Mo.*
Clement Milton Holderman, *l*	96	*North Manchester, Ind.*
Branson Harley Holmes		*Lima, O.*
Howard Samuel Holmes	30	*Chelsea*
Jessie Ione Holmes	90	*Aurora, Ill.*
Mary Grace Holmes	55	*Kenton, O.*
Hartley Bowen Holroyd, B.S., *Kansas State Agricultural College*	60	*Washington, D. C.*
Elizabeth Langston Holton	15	*Indianapolis, Ind.*
Vida Lucetta Holtzman	80	*Vernon*
†Arno Rauch Honberger, *m*	52	*Toledo, O.*
Mildred Ione Honecker	60	*Cleveland, O.*
Max Ray Hoover	56	*Shepherd*
Agnes Hopkins	61	*Bear Lake*
Myrle Hopkins	30	*Ann Arbor*
James Avery Hopwood	103	*Cleveland, O.*
Belle Mix Hormell	40	*Kansas City, Mo.*
Mary Horn	72	*Imlay City*
Leon Edgar Horwitt	38	*Fort Smith, Ark.*
Alexis Charles Houghton	93	*Ann Arbor*
Charles William Houghton	S	*Detroit*
Harry Garfield Houghton	62	*Oak Grove*
Eugene Bernard Houseman	64	*Grand Rapids*
Nina Maud Houser	91	*Michigan City, Ind.*
Ethel June Howe	56	*Belding*

Ruth Walton Howe	77	*Worcester, Mass.*
Loy Eugene Hoyt	22	*Chillicothe, O.*
Anne Elizabeth Huber	102	*Detroit*
May Clara Hudson	70	*Augusta*
O'Rudy Huelster	S	*Detroit*
Arthur Thomas Hugg	88	*Oskaloosa, Ia.*
Helen Vie Hulett	94	*Detroit*
Lawrence Cameron Hull, Jr.	98	*Orchard Lake*
Harold Alonzo Hume, *m*	59	*Owosso*
Estelle Louise Hunt	90	*Houghton*
Harold Olney Hunt	101	*Adrian*
Harry Christianar Hunt	60	*Munhall, Pa.*
Inez Adelia Hunt	93	*Richmond*
Lucretia Pamelia Hunter		*Baraboo, Wis.*
Maud Ethel Huntsberger		*Toledo, O.*
Edith Schutte Hurst	81	*Chillicothe, O.*
Thomas Hutchinson	39	*Menominee*
Alonzo Bee Imus	60	*Ann Arbor*
Lois Inglis	S	*Grosse Ile*
Kiyosue Inui	53	*Kobe, Japan*
John Mansfield Irving	30	*Toledo, O.*
Earle Stephen Irwin		*Grand Rapids*
Harry Wayne Isenberg		*Toledo, O.*
Maude Adele Isherwood	61	*Grand Haven*
Keikichi Ishida	25	*Kanazawa, Japan*
Bess Hazelton Jackson	S	*Springville, N. Y.*
George Leroy Jackson	S	*Springville, N. Y.*
Glenn Watson Jackson		*Gladstone*
Helen Louise Jacobi		*Mount Clemens*
Arnold Leon Jacoby	34	*Chicago, Ill.*
Elden Valorious James, A.B., *Marietta College*	90	*Williamstown, W. Va.*
William Bruce James		*Lake Ann*
Myra Anna Jaquet	30	*Ann Arbor*
Ira Waite Jayne, *l*	95	*Fenton*
William Jehle	69	*Woodmere*
Nannie Jenkin	67	*Hubbell*
Rose Mary Jenney	60	*Oberlin, O.*
Alpheus Felch Jennings	30	*Detroit*
Augustus Martyn Johnson	89	*Ann Arbor*
George Kinney Johnson, 2nd.	15	*Grand Rapids*
Guy McKevitt Johnson, *m*	102	*Middleville*
Harry Frank Johnson		*Grand Rapids*
Helen Lenor Johnson	93	*Fowlerville, N. Y.*
Jay Howard Johnson	62	*Ann Arbor*
Lena May Johnson	84	*Hudson*
Mary Marilla Johnson	88	*Ann Arbor*
Caroline Mildred Johnston	S	*Alpena*

Evered Vivian Jolliffe	30	*Plymouth*
Arthur John Jones, *m*	92	*Detroit*
Ella May Jones	56	*Ridgeway*
Ezra Harold Jones		*Detroit*
Herbert Clay Jones	16	*Shelbyville, Ind.*
Isla Helen Jones	58	*Grand Rapids*
Lorin Hamlin Jones, *l*	103	*Union City*
Nydia Russella Jones		*Vulcan*
Paul Van Brunt Jones	70	*Ann Arbor*
Samuel Tilden Jordan	44	*Paw Paw*
Homer Walker Josselyn	93	*Detroit*
Irma Antoinette Judd	44	*Toledo, O.*
Clyde Fenworth Karshner, *m*	97	*Big Rapids*
Emma Rosetta Kassebaum	S	*Rossville, Kan.*
Frances Gertrude Kearney		*Dexter*
Mary Alice Keating	30	*Huntley, Ill.*
Fred Barker Keeler	22	*Detroit*
Francis Bishop Keeney	62	*Ann Arbor*
Emma Rose Keil	S	*North Tonawanda, N. Y.*
Nellie Mae Kellogg	94	*Battle Creek*
George Arthur Kelly		*Ottawa, Ill.*
Harry Lorenzo Kelly	30	*Cleveland, O.*
Judd Kelly		*Adrian*
Spafford Earl Kelsey		*Caro*
William Kline Kelsey	40	*Toledo, O.*
Elsa Caroline Kempf	26	*Ann Arbor*
William Herbert Kempfer		*Beaver Springs, Pa.*
Joseph Hubert Kempster	78	*Coldwater*
Annie Margaret Kenaga		*Kankakee, Ill.*
Raymond Russell Kendrick, *l*	93	*Saginaw*
Edwin James Kenny, *l*	100	*Duluth, Minn.*
Joseph Stanley Kent	63	*Saginaw*
Joseph Young Kerr	89	*Chicago, Ill.*
William Henry Kewish	S	*Painesville, O.*
Ross Howland Kidston	96	*La Grange, Ill.*
Virgil Morrison Kime	62	*Atlanta, Ga.*
José Bergin King	92	*Chicago, Ill.*
Regina Kingman	25	*Battle Creek*
Eva May Kinney	91	*Detroit*
Lydia Esther Kinsley	S	*Manistee*
William Gifford Kirby, Jr.		*Galesburg*
Francis Washington Kirkham	S	*Lehi City, Utah*
Will Rudolph Kirn	82	*Chicago, Ill.*
Winifred Ables Kirschman	S	*Ann Arbor*
Monta Volney Kistler		*Topeka, Kan.*
Hester Ann Kitson		*Ionia*
Irene Margarethe Kleinstück	60	*Kalamazoo*
Katherine Louise Klingel	57	*South Bend, Ind.*

Elmer Lee Klise	94	*Petoskey*
Elsie Laura Knapp	61	*Ida*
Gearry Lloyd Knight	30	*Zanesville, Ind.*
Rupert Henry W. Koch		*Ann Arbor*
Clara H. Kramer	88	*Cheboygan*
Henri Clyde Krenerick	90	*Ypsilanti*
Julian Henry Krolik	75	*Detroit*
†Ralph Levi Kryder, *e*		*Akron, O.*
Carl Christopher Kusterer	69	*Grand Rapids*
Albert George Kyselka		*Traverse City*
Edwin DeForest Lacy	30	*Warren, Pa.*
May A. LaFever	50	*Battle Creek*
Jessie Gould Laing	60	*Ann Arbor*
George Emery Lalley		*Lowell*
Charlotte Lane	76	*Ann Arbor*
Robert McNeil Lane	48	*Toledo, O.*
George Michie Laning		*Gambier, O.*
Homer Clarke Lathrop		*Swanton, O.*
Harold Kenneth Latourette	84	*Fenton*
Pauline Charlotte Lau	S	*Ann Arbor*
Edward Henry Lauer	61	*Peru, Ill.*
Michael Joseph Lavoy	S	*Detroit*
Gertrude Irene Lawlor	40	*Joliet, Ill.*
†Clarence William Lawr, *e*	107	*Elk Rapids*
Martha Coryell Lawton	S	*Ridgeway*
Vera Lay	30	*Kalamazoo*
Emil John Lederle	30	*Leland*
Harold Plant Lederman		*Kansas City, Mo.*
Marion Eleanor Leeper, *m*	99	*Dover, O.*
Robert Burt Leete	30	*Detroit*
Harley Kenneth Legg, *l*	73	*Colon*
George Michael Lehman		*Ann Arbor*
Alina Leinonen		*Laurium*
Rosco Genung Leland	23	*Mendon*
Mary Katherine Leonard	30	*Urbana, O.*
Ellen Norvina Lethin	30	*Elgin, Ill.*
Hattie Edythe Levin		*Michigamme*
John Fletcher Lewis, *l*	94	*Covington, Ky.*
Katherine Vienna Lewis	62	*Climax*
Neva Fern Lewis		*Jackson*
Carl Liesendahl		*Chicago, Ill.*
Clarence John Lignian	30	*Ann Arbor*
Jennie Marian Liebich-Coy	91	*Saginaw*
George Allan Lindsay	94	*Wyandotte*
Unabelle Locke	94	*Detroit*
Carlos Pointon Long	97	*Rogersville*
Gebhard Joseph Long	60	*Tower City, Pa.*
Irvin Westhafer Long	63	*Monroe*
William Carson Long		*Chicago, Ill.*

Kathryn Marjorie Loose		*Pittsburg, Pa.*
Alvin Lorie		*Kansas City, Mo.*
Arthur Herbert Loucks	30	*Grand Rapids*
Clyde Elton Love	95	*West Branch*
Jay Mack Love		*Arkansas City, Kan.*
Parish Storrs Lovejoy	14	*Princeton, Ill.*
Enos Taft Lovell	23	*Crowley, La.*
L. Ruth Lowe		*Jackson*
Martin Lowenberg	28	*Cincinnati, O.*
John Albert Lubbers		*Clinton, Ia.*
Edward Bulnes Lucius	28	*Chicago, Ill.*
L. Coleman Ludlum		*Greenville*
Doris Colborn Lutes	8	*Toledo, O.*
Edith Corbin Lutes	30	*Toledo, O.*
Albert Eddy Lyon		*Detroit*
Marguerite Dudley Mabley	93	*Jackson*
Roy Kenneth McAlpine	60	*Jackson*
Barbara Hamilton McAlvay		*Manistee*
Nancie MacArthur	76	*Cass City*
James Wilbur McCandless		*Dayton, O.*
John Harvey McCandless	61	*Dayton, O.*
Joseph Henry McCann		*Stockbridge*
Gertrude Nell McClelland	87	*Portland*
Louis Charles McClure	22	*Tecumseh*
Ethel Pierce McCombs	86	*Bay City*
Louise Carey McConnel		*Jackson*
Lee Alexander McCracken	26	*Oil City, Pa.*
Stella May McCracken	26	*Arlington, N. J.*
Neel McFarland McCullough		*Anderson, Ind.*
Effie Macdonald		*Hubbell*
Nelson Ferris Macduff	85	*Jackson*
Myrtle Currie Macfayden		*Detroit*
Ford Herbert McGregor	64	*Mount Clemens*
James Donald McIntosh		*Owosso*
May Nelle McKinney	30	*Holly*
Elsie McLain	66	*Saint Louis, Mo.*
Violet Emma McLaren	30	*Ann Arbor*
Belle Maclean	60	*Chicago, Ill.*
Ethel Jane Maclean	54	*Hancock*
George Hudson McLellan, *m*	95	*Saginaw, West Side*
Joseph Glenwood McMacken	56	*Mount Pleasant*
William Duncan McNally	88	*Saginaw*
William McPherson	51	*Howell*
Isabella Mac Rae	56	*Laurium*
Emory Ford McSherry	26	*Brookville, O.*
Georgena Amy McSweeney	90	*Detroit*
Hector Tripp Madison		*Albion*
Saul Magnus	28	*Cincinnati, O.*
Paul Parker Magoffin	S	*Washington, D. C.*

George Gordon Malcolm	61	*Pontiac*
Mary Katharyn Malcomson	44	*Detroit*
Alice Malone		*Bay City*
Bertha Evelyn Malone, B.S., *Michigan Agricultural College*	90	*Webberville*
Minnie Maud Manley	110	*Caro*
Jessie Ellen Mann	56	*Concord*
Louise Anna Mann		*Ann Arbor*
Ruth Mable Manville	8	*West Chicago, Ill.*
Ira Albertus Marble, *m*	95	*Ann Arbor*
Cyril Eugene Marks, *l*	90	*Racine, Wis.*
Lawrence Marquis Marshall	60	*West Bay City*
Mark Marshall, B.S., *Earlham College, m*	90	*Richmond, Ind.*
William J. Marshall, *m*	101	*Ann Arbor*
Edith Hazel Martin	92	*Vermontville*
Eugene Perry Martin	62	*Blue Island, Ill.*
Frederick Perry Martin		*Jamestown, N. Y.*
Helen Mary Martin		*Ann Arbor*
Persis Lydia Martin	60	*Ann Arbor*
Charles Elmer Mason		*Ann Arbor*
Lulu Ruth Mason		*Rockwood, Pa.*
Ella Annetta Mathews	88	*Ann Arbor*
Donald Maxwell Matthews		*Orange, N. J.*
Harry Eugene Matthews	60	*Jackson*
Harold Griffin Mauzy		*Indianapolis, Ind.*
Edna Josephine Mayworm	3	*Detroit*
Franklin Bush Mead	73	*Cincinnati, O.*
Helen Douglas Mead	30	*Escanaba*
Edith Viola Meads		*Calumet*
John Collier Mechem	25	*Chicago, Ill.*
Alexina Meier		*Ann Arbor*
Gordon Louis Mendelssohn		*Detroit*
Bertha Philomene Merkle	90	*Chillicothe, O.*
Walle Willard Merritt		*Portland, Ore.*
Herma Louise Meyer		*Lincoln, Ill.*
Charles Jacob Michelet, *l*	93	*Westby, Wis.*
†Harry Elmer Mick, *e*	16	*Goshen, Ind.*
Margaret May Milbank	102	*Rye, N. Y.*
Thomas LeRoy Milburn	56	*Niles*
Katherine Belle Millen	S	*Muskegon*
Anna Josephine Miller	86	*Racine, Wis.*
Charles William Miller, *m*	60	*Peoria, Ill.*
Elisebeth Gertrude Miller		*Sturgis*
Elnora Belle Miller	90	*Greenville*
Francis Rankin Miller, *l*	80	*Flint*
Helen Warren Miller	S	*Chesaning*
Madge Miller	4	*Muskegon*
Ruth Estelle Miller	2	*Salamanca, N. Y.*

Sidney Romeyn Miller	91	*Big Rapids*
Jean Milligan	90	*Calumet*
Harold Earl Miner	30	*Owosso*
Van Lieu Minor	93	*Climax*
Leonard Rollman Minster		*Cincinnati, O.*
Bernice Pearl Mitchell	30	*Southold, N. Y.*
Clara Louise Moffett	54	*Flint*
Robert Emmett Monroe		*Webberville*
Albert Horr Montgomery, *m*	93	*Chicago, Ill.*
Henry Arthur Montgomery		*Flint*
Arthur Watson Moore		*Bay City*
Carl Radcliffe Moore	30	*Port Huron*
Dennis L. Moore	78	*Freedom, N. Y.*
Mabel Emma Moore	93	*Howlett*
Ruth Moore		*Troy, O.*
Mabel Julia Moorhead	92	*Moorheadville, Pa.*
Fred Charles Morgan	70	*Saginaw, West Side*
James G. Morningstar	18	*Ann Arbor*
Edna Belle Morris	30	*Saint Johns*
Fannie Leone Morris		*Grand Rapids*
Samuel Ferguson Morris	43	*Detroit*
Evangeline Mary Morrisey	56	*Grand Rapids*
Roscoe Conklin Morrison	57	*Elkhart, Ind.*
Ashley Walker Morse, *m*	61	*Ann Arbor*
Harold Rex Morse		*Saint Joseph*
Mary Eugenia Morse	62	*Dowagiac*
Plinn Frederick Morse	30	*Detroit*
William Albin Morse	95	*Detroit*
Rena Howell Mosher	30	*Ann Arbor*
Annie Morton Mulheron	61	*Detroit*
Ortille Mullenbach	90	*Marshall, Mo.*
Blanche Munyan		*Bay City*
Agnes Aloyse Murphy		*Saginaw*
Jesse William Murphy		*Battle Creek*
Lowell Thomas Murray	6	*Cincinnati, O.*
Blanche Eloise Myers	89	*Muir*
Albert Napoleon Nadeau		*Butte, Mont.*
Adriaan Nagelvoort	100	*Detroit*
Wencel Alexander Neumann	24	*Marlette*
John Gustave Neumarker	62	*Columbus, Neb.*
Edwin Lowe Neville	38	*Cleveland, O.*
Josephine Ana Nevins		*Otsego*
Fred Bigelow Newton	12	*Sault Ste. Marie*
Elliott Slocum Nichols	S	*Trenton*
Mabel Alice Nichols		*Purcellville, Va.*
Frank Dwight Nicol	22	*Detroit*
Frederick Ward Ninde	S	*Ann Arbor*
George Falley Ninde	90	*Ann Arbor*
Louise Myra Nixon	30	*Veedersburg, Ind.*

Harold Adelbert Noble	75	*Ann Arbor*
Nonna Alvira Norris	62	*Port Huron*
Daisy Olivia North	31	*Lake Linden*
William Earl North	S	*Dryden*
Guy William Norton	91	*Saint Johns*
Ralph Waldo Oakley, Jr.		*Detroit*
Emily Myers Oberlin	54	*Columbia, Pa.*
Jessie Obetz	S	*Detroit*
Mary Beatrice O'Callaghan	43	*Greenville*
Harriet Teresa O'Dea	90	*Detroit*
James Earl Ogle, Jr.	30	*Johnstown, Pa.*
Mary Cecelia O'Leary	26	*Saginaw, West Side*
Thomas Lawrence O'Leary		*Montague*
Anne Loraine Oliver	62	*Allegan*
Anne Olney		*Fort Dodge, Ia.*
Daisy Caroline Olney	24	*Ann Arbor*
Mahlon Ellsworth Olsen	102	*Battle Creek*
Stella Othelia Olson	30	*Calumet*
Alfred John Oppliger	75	*Rome, O.*
Louise Orth	62	*Delray*
Arthur Henry Ortmeyer	73	*Evansville, Ind.*
George Augustus Osborn	26	*Sault Ste. Marie*
Grace Osborne	111	*Petoskey*
Grace Amanda Osborne	53	*Mancelona*
William August Otto	56	*Melvin, Ill.*
Erle Blaine Owens		*Benton Harbor*
Frederic Breading Oxtoby	86	*Saginaw*
Clara Elisabeth Pagenstecher	78	*Dayton, O.*
†Carl Pelton Palmer, *e*	8	*Grand Rapids*
William Joseph Palms		*Detroit*
Charles Irven Parker		*Rohrsburg, Pa.*
Earle Milan Parker	62	*Dowagiac*
Frank James Parker	22	*Franklin, O.*
Franklin Crocker Parks	66	*Oil Springs, Ont.*
Isabelle Helen Parnall	91	*Calumet*
Maud Parr	48	*Maple Rapids*
Carl Eugene Parry, *l*	93	*Ann Arbor*
Walter Stephenson Parsons	90	*Chardon, O.*
Louia Arch Paschke	70	*Fredonia*
Lida Leah Pate	S	*Adrian*
Alphonse Joseph Pater		*Hamilton, O.*
Carl Joseph Pater	60	*Hamilton, O.*
Harry Evans Patrick	30	*Ann Arbor*
Clyde S. Paxton		*Marshall*
Dorothea Ruth Payne	60	*Detroit*
Albert D. Pearce		*Pentwater*
Leona Bradley Peavy	12	*Ann Arbor*
Florence Amarillis Peck	S	*South Bend, Ind.*
Katherine Pearlita Penberthy	60	*Menominee*

Clarence Axtell Penman	18	*East Chicago, Ind.*
Leigh H. Pennington	S	*Palmyra*
Alfred Emery Perkins		*Otsego*
Marion Elizabeth Perkins	60	*Mexico City, Mex.*
Myrtie Leah Perrigo	95	*Allegan*
Alice Heber Perry	66	*Chicago, Ill.*
Cora Eliza Petty	92	*Morris, Ill.*
Addison Leroy Phillips	76	*Ann Arbor*
Frank Jay Phillips, B.S., *Michigan Agricultural College*	90	*Grand Rapids*
Jessie Emeryetta Phillips	90	*Ann Arbor*
Bertha Elizabeth Pierce	70	*Chicago, Ill.*
Duncan Haldane Pierce	S	*Buffalo, N. Y.*
Howard Harvey Pierce	92	*Fort Wayne, Ind.*
Lucia Wynifrid Pierce	92	*Chicago, Ill.*
Matthew Griswold Pierce	16	*Peoria, Ill.*
Axel William Pierson	104	*Grand Rapids*
Ralph Reynolds Pinckard, *m*	61	*Kalamazoo*
Edward M. Plunkett		*Ann Arbor*
Mignon Blanchard Polglase		*Lapeer*
Earl Stevens Porter	61	*Galesburg, Ill.*
Harry Oral Potter	22	*Charlotte*
Susan Bertha Potter	94	*Peabody, Kan.*
Louise Pottinger		*Peru, Ill.*
Arthur Charles Pound	30	*Pontiac*
Percy Douglass Pound		*Detroit*
Marion Louise Powers	30	*Detroit*
Charlotte Ione Poynor	30	*Athens, Tex.*
Elizabeth Norman Prall	68	*Saginaw*
Carrie Louise Pray		*Toledo, O.*
Edward David Pray	11	*Chicago, Ill.*
Joel Henry Prescott	30	*Newark, N. Y.*
John Frederick Preston	49	*Higginsville, Mo.*
Katharine Imogene Preston	90	*LaPorte, Ind.*
Carrie Amelia Proctor	30	*Antwerp, N. Y.*
Edithbelle Purdie	26	*Wyandotte*
Louis Quarles	103	*Milwaukee, Wis.*
Alice Nellie Quick	72	*Golden, Col.*
Bert Edwin Quick		*Lowell*
George Ellsworth Raburn	30	*Howard, Kan.*
Carl Horace Ramsdell	S	*Manistee*
Ruby C. Ramsdell	87	*Red Oak, Ia.*
Horace Launson Randall	S	*Grand Rapids*
Vernon Calvin Randolph	S	*Chicago, Ill.*
Andrew Cleaveland Rankin	S	*York*
Josephine Elvin Rankin		*Ann Arbor*
George Arthur Rathbun		*Dundee*
James Athol Rawlins	46	*Salt Lake City, Utah*

Ethel Mary Read	96	*Pinckney*
Herbert William Read	S	*Kalamazoo*
Florence Genevieve Reamer	61	*Ann Arbor*
Arthur Turner Reasoner		*Lansing*
Sarah Elizabeth Reath		*Norway*
John Albert Redfield	74	*Ann Arbor*
Anna Caroline Reding	105	*Hubbell*
Rose Justine Reding		*Hubbell*
Jane Sharp Reed	69	*Richmond, Ky.*
Jay Theodore Reed	4	*Detroit*
Daisy Cora Reeves	S	*Rockford, Ill.*
Jennie Louise Reid	S	*Ann Arbor*
Mabel May Reid	61	*Bay City*
Louise Minnie Reimold	28	*Saginaw*
Anna Evelyn Remer	61	*Saginaw, West Side*
Frederic Charles Renaud	76	*Detroit*
Florence Marie Rennie	30	*Niles*
May Abbie Renwick	43	*Muskegon*
Walton Karthalo Rexford, *m*	98	*Ypsilanti*
Alice Elizabeth Reynick	62	*Saginaw, West Side*
Sallie Palmer Rice	97	*Detroit*
Charles Raymond Richards	S	*Salem, O.*
Allan Livingston Richardson		*Detroit*
Stella Marie Rinsey		*Ann Arbor*
Archer Frederic Ritchie	34	*Detroit*
Lorne Stanley Barnet Ritchie	78	*Valley City, N. D.*
Ruth Rizer	30	*Washington, D. C.*
Homer Elmer Robbins	90	*Ann Arbor*
Samuel Henry Roberts, *l*	92	*Ann Arbor*
Guy C. Robertson		*Detroit*
Charlotte Robinson		*Saginaw*
Clara Elizabeth Robinson	90	*Ann Arbor*
Charles Merwyn Rodi	30	*Calumet*
LaVern Rogers, *m*	91	*Albion*
Warren Lincoln Rogers	S	*Birmingham*
Clyde Calvin Roller		*Ashtabula, O.*
Clifford Dudley Rood		*Brocton, N. Y.*
Edward Addison Rood	92	*Grand Rapids*
Goldie Rosen	S	*Muskegon*
Gustave William Rosenberg, *l*	104	*Brooklyn, O.*
Florence Rosenthal	S	*Toledo, O.*
Henrietta Rosenthal	8	*Braddock, Pa.*
George Byron Roth, *m*	60	*Mount Eaton, O.*
Dorothea Rouse	97	*Bay City*
Harlan Page Rowe	83	*Bad Axe*
Frank Emery Royce, *l*	90	*Ann Arbor*
Florence Ruby		*Union City, Ind.*
Winifred Isabelle Rudge	89	*Port Huron*
Marie Antoinette Ruhlman		*Detroit*

Fanny Belle Rule	94	*Detroit*
Emma Rund	28	*Bessemer*
Margaret Magdalene Ruppe	30	*Hancock*
Glenn Vinton Russell		*Toledo, O.*
Lea Daisy Russell		*Jackson*
Beatrice Marion Ruthven		*Ruthven, Ia.*
Charles Hickey Ruttle		*Bay City*
Agnes Elizabeth Ryan	S	*Ann Arbor*
Nellie Catherine Ryan		*Detroit*
William Robertson Sabin	S	*Johnson City, Tenn.*
Homer Samuel Sackett	60	*Avon, N. Y.*
Eugenia Elizabeth Sage	3	*Lewiston, N. Y.*
Sophie Rood St. Clair	94	*Ishpeming*
Wilfred Napoleon St. Peter	86	*Norway*
Etta Louise Salliotte	90	*Ecorse*
John Thomas Sample, *m*	66	*Saginaw*
Leo Sandler		*Grand Rapids*
William Craig Sanford	30	*Pontiac*
Homer Stuart Sayres	30	*Detroit*
Fred Martin Schaeberle	26	*Ann Arbor*
Clara Catherine Schaible		*Ann Arbor*
Rosina Katherine Schenk		*Ann Arbor*
Etta Evelyn Schertz	93	*Peoria, Ill.*
Cecile Sophia Schirmer	60	*Chicago, Ill.*
Ernst Schmitz	102	*Detroit*
Richard Schottstaedt	34	*Gloversville, N. Y.*
Carl Frederick Schreiber	16	*Saginaw*
Henry Frank George Schulte	S	*Jefferson Barracks, Mo.*
Shelby Brewer Schurtz	30	*Grand Rapids*
Alice Brooks Scott	81	*Duluth, Minn.*
Erma May Scott	31	*Carl*
Willard Barnhart Scott		*Grand Rapids*
Amy Scutt		*Bay City*
Mabel Roberts Secor	50	*Arlington, N. J.*
Mabel Clare Seelye		*Bad Axe*
Cassius Goodman Selden		*Vassar*
Nora Rebecca Sevison	30	*Constantine*
Mabel Elizabeth Sewell	30	*Milwaukee, Wis.*
Emily Seymour	94	*Ann Arbor*
Elmer Spessard Shank, *l*	90	*Mount Morris, Ill.*
Eva Alma Sharpe	30	*Howell*
Ruth Shartel	22	*Neosho. Mo.*
Edith Whitney Shaw	60	*Mocns, N. Y.*
Henry George Shaw	S	*Tacoma, Wash.*
John Charlton Shaw	60	*Ovid*
Margaret Elizabeth Shearer	104	*Ann Arbor*
Geraldine Eunice Sheehan	87	*Detroit*
Lora Sheldon	S	*Denver, Col.*

George Handy Shelton	30	*Grand Rapids*
Albert Wolfe Sherman		*Port Huron*
Delos Abiram Shiner	30	*Wheeler*
Bertha Lovenia Shuey		*Toledo, O.*
Aaron Franklin Shull	6	*New Carlisle, O.*
Ernest McPherson Sims	67	*Indianapolis, Ind.*
Robert William Sinclair	30	*Detroit*
Dorr Skeels	S	*Harriette*
William Warner Sleator	34	*Northville*
Thomas Harry Slusser, *l*	93	*Downers Grove, Ill.*
Harriet Mary Smalley		*Detroit*
Katharine Elizabeth Smalley	95	*Dansville, N. Y.*
Sadie Mary Smart	30	*Hancock*
Edythe Viola Smeeth	30	*Ann Arbor*
Adeline M. Smith		*Cassopolis*
Bertram Garner Smith	48	*Youngsville, Pa.*
Charles Stowell Smith	111	*Ann Arbor*
David Edward Smith		*Woodland*
Edna Smith	104	*Ann Arbor*
Edna Bianca Smith	16	*Alva, Okla.*
Ferris Nicholas Smith	30	*Pontiac*
Gertrude Chalfant Smith	88	*Westchester, Pa.*
†Harold Craig Smith, *e*	40	*Detroit*
Hiram Richard Smith		*Lakeland*
John Clarence Smith, *h*	91	*Ann Arbor*
Marion Smith	90	*Aurora, Ill.*
Mary Louise Smith	95	*Ann Arbor*
Robert C. Smith	78	*Saint Johns*
Vernon Wayne Smith	3	*Riga*
William Earl Smith		*Manistee*
Clement Eyer Smoot	61	*Highland Park, Ill.*
Eleanor Smoot	8	*Highland Park, Ill.*
Walrond Carter Snell	61	*Miles City, Mont.*
Agnes Luanna Snover	93	*Mount Clemens*
Robert Earle Snyder	86	*Pueblo, Col.*
Frederick Charles Solms	65	*Saginaw*
Hugo Sonnenschein, *l*	106	*Chicago, Ill.*
Grace Sorenson	S	*Omaha, Neb.*
Lena Olga Sorg	S	*Ann Arbor*
Nellie Cuvier Speakman	31	*Westchester, Pa.*
Roy Everett Spencer	10	*Ypsilanti*
Lavina Spindler	25	*Lansing*
Thomas Wright Spofford		*Northeast, Pa.*
Olenus Lee Sponsler	S	*Three Rivers*
George Heman Sprague	60	*Northeast, Pa.*
Charles Henry Sproat, *m*	85	*Valley Falls, N. Y.*
Henrietta Staadecker		*Toledo, O.*
Elizabeth Jane Stafford	97	*Ann Arbor*

Clara Inglis Stalker	42	*Saginaw*
Emma Stanbery	109	*Evanston, Ill.*
Oliver Otis Stanchfield	30	*Ann Arbor*
Elsa Gardner Stanley	S	*Ann Arbor*
Elvira Lovisa Stark	91	*Ann Arbor*
Emily Sumner Stark, *m*	55	*Ann Arbor*
Guy Wakeman Stark	S	*Vassar*
Helen Fay Stark	87	*Ann Arbor*
Clara Ellen Starr	14	*Royal Oak*
Nicholaas Wouter Stas		*Amsterdam, Netherlands*
Virginia Stearns	60	*Adrian*
Ruth Elizabeth Steglich	14	*Grand Rapids*
Charles Stein	6	*Chicago, Ill.*
Sidney Stein		*Chicago, Ill.*
Leon Steinberg		*Traverse City*
William George Steiner	29	*Duluth, Minn.*
Isobel Jeannette Stellwagen	86	*Wayne*
Donald Justus Sterling		*Battle Creek*
Harry Clifford Stevenson	63	*Kalamazoo*
George Henry Steves	86	*Brooklyn*
Mabelle M. Stewart	90	*Hillsdale*
Mary Stewart	57	*DeLand, Fla.*
Nannette Marie Stewart	88	*Monroe*
Louis Darling Stickney	54	*Ann Arbor*
Mallory Napoleon Stickney	90	*Lapeer*
Phebe Mildred Stiles	30	*Grand Rapids*
Sadie Agnes Stiles	30	*Grand Rapids*
Adeline Abbie Stine	91	*Ann Arbor*
Juliet Williston Stockbridge	60	*Ann Arbor*
Margaret Stockbridge		*Ann Arbor*
Harold Augustus Stockly	92	*Hancock*
Marion Louise Stoddard	S	*Lenox*
Ralph Stoepel	84	*Detroit*
John Hinchman Stokes	39	*Washington, D. C.*
Herbert King Stone	97	*Waterford, Me.*
Irving Kimberly Stone	97	*Battle Creek*
Julia Fanny Storm	S	*Ann Arbor*
Harry Bryan Stover	64	*Valley Falls, N. Y.*
John Spoor Stover, *l*	91	*Milwaukee, Wis.*
Fred Charles Strain, *l*	94	*Ann Arbor*
Anna Muriel Streibert	30	*Three Rivers*
Ethel Katherine Streibert	30	*Potsdam, N. Y.*
Hildegard Strempfer	89	*Toledo, O.*
Rolland Arthur Stretch	58	*Ann Arbor*
Irene May Stringer	59	*Detroit*
†Bernhard Stroh, Jr., *e*	26	*Detroit*
Maud Hascall Stuart	30	*Ann Arbor*
Mayme Clare Sullivan	67	*Hubbell*

Rose Elizabeth Sullivan	62	*Detroit*
Corwine Sutherland	30	*Detroit*
Olive May Sutherland		*Detroit*
Lula Leona Swift		*Edenboro, Pa.*
Cora Edith Swingle, B.S., *Kansas Agricultural College*		*Rochester*
Helen Elizabeth Swinton	18	*Saginaw*
Leslie Post Tabor		*Charlotte, N. Y.*
Henry Chester Taft		*Ann Arbor*
Mabel Hall Talcott	33	*Elmwood, Conn.*
Wilson Pennell Tanner		*Mansfield, O.*
Charlotte Marie Tarsney	S	*Detroit*
Louise Hopkins Tatlock	71	*Ann Arbor*
Margaret Lloyd Tatlock	102	*Ann Arbor*
Ethel Taylor	60	*Negaunee*
Margaret Chapin Taylor	S	*Ann Arbor*
Monte B. Taylor		*Coldwater*
Ward Lapey Taylor	60	*Port Huron*
Eugene Telfer	27	*Detroit*
Hale Tennant	89	*Saint Joseph*
Leo Thomas		*Troy, O.*
Elsie Rose Thomasma	107	*Grand Rapids*
Arthur Henry Thompson	S	*Sedro Woolley, Wash.*
Edith Marian Thompson	64	*Evart*
Helen Ruth Thompson	94	*Detroit*
Virginia Agnes Thomson		*Ann Arbor*
George Theodore Thorward	76	*South Bend, Ind.*
Grace Helen Tiffany	27	*Albion, N. Y.*
William Edward Tipping		*Ishpeming*
Grace Augusta Todd	107	*Jackson*
Margaret Grace Townley	23	*Ann Arbor*
Ethel Grey Trask	26	*Bay City*
Richard Hayman Tremper	60	*Portsmouth, O.*
Elsa Flora Tritscheller	104	*Chillicothe, O.*
Alexander Linn Trout	99	*Ann Arbor*
Mary Harriet Truesdell		*Port Huron*
Roy Pratt Tucker	14	*Grand Rapids*
George Dexter Tunison		*Fenton*
Mabel Tuomey	59	*Detroit*
Charles Earl Turner		*New Sharon, Ia.*
Margaret Turner	8	*Escanaba*
Rhea Luella Tyler	91	*Chicago, Ill.*
Ethel Marion Tyrrell		*Lake Geneva, Wis.*
John Stanley Tyrrell		*Escanaba*
Marshall Mortimer Uhl	80	*Grand Rapids*
†Frank Sherman Upham, *e*	27	*Cleveland, O.*
William Harold Upjohn	30	*Kalamazoo*
Stella Upton	26	*Sault Ste. Marie, Ont.*

Alberta Beatrice Uren		*Lake Linden*
Francis Carl Vander Veen	S	*Grand Rapids*
Alice Vander Velde	93	*Grandville*
Catherine Van Gorden	45	*Hamilton, O.*
Delia Van Kleeck	30	*Bay City*
Newton Gard Van Ness		*Cassoplis*
Donald Dexter Van Slyke	96	*Geneva, N. Y.*
Katherine Van Valkenburgh		*Hastings*
Madge Caroline Van Winkle	67	*Howell*
Charles Emmit Varier	30	*South Bend, Ind.*
Liefy Jeannette Veenboer	92	*Grand Rapids*
†Stanley Evans Vernor, *e*		*Detroit*
Nathan Thomas Viger, *l*	97	*Detroit*
Lelia Volland	56	*Grand Rapids*
Marie Volmari	60	*Grand Rapids*
Bertha Belle Vondrácek	20	*Cedar Rapids, Ia.*
Olga Olive von Zellen	94	*Skanee*
Carlton Revier Wade		*Ann Arbor*
Elsie Rochester Wade	96	*Golden, Col.*
Edith May Wadhams	44	*Ann Arbor*
Robert Millikan Wadsworth	60	*Warren, O.*
Newton Macy Wagener	45	*Kansas City, Mo.*
Harry Leigh Wagner		*Harbor Beach*
Theodore Edward Wagner	85	*Buffalo, N. Y.*
Ethel Rosetta Walden		*Grand Rapids*
Ethelbert Waldron	88	*Ann Arbor*
Adam Alexander Walker	60	*Madrid, N. Y.*
Howard George Walker		*Madrid, N. Y.*
Zella Louise Walker	9	*Ironwood*
Mathilde LaRue Wallace	15	*Houghton*
Warren Leslie Wallace	30	*Morristown, N. Y.*
Louis William Walter	45	*Flint*
Katherine Fedora Walters	56	*Keokuk, Ia.*
Ida Margaret Walz	86	*Harrisburg, Pa.*
Hiram John Wambold		*Waukesha, Wis.*
Joseph E. Ware		*Grand Rapids*
Luther Fiske Warren	30	*Clarkston*
Robert Schuyler Warren	S	*Hinsdale, Ill.*
Howard Edwin Washburn	30	*Hope, N. Dak.*
Mabel Vera Waters		*Albuquerque, N. M.*
Matilda Agnes Watkins	30	*Ann Arbor*
Parke Haffield Watkins		*Ithaca*
Isabella Rightmyer Watt		*Ann Arbor*
Anna Louise Waugh	76	*Duluth, Minn.*
Ulysses S. Weary		*Saint Joseph, Mo.*
Hellen Barbrie Weaver		*Milford*
Ada Louise Weckel	99	*Moline, Ill.*
Marguerite Clara Wedd	60	*Mortimer, N. Y.*
Leo Carl Weiler		*Joplin, Mo.*

Mame Weir	60	*Calumet*
Pina M. Welbourn, *m*	96	*Union City, Ind.*
Roy Dickenson Welch		*Dansville, N. Y.*
Edward Howland Weld, *m*	98	*Rockford, Ill.*
Matilda Rayburn Wells		*Howell*
Joseph Mortimer Welt	58	*Detroit*
Harold G. Wesley		*Adrian*
Sarah Blanch Weston	107	*Watervliet*
Buel Wetmore		*Detroit*
†Cleon De Mont Wheeler, *e*	23	*Three Rivers*
Milo Watts Whims		*Orion*
Hazel Harper Whitaker	79	*Fort Wayne, Ind.*
Annie Lucile White	S	*Fremont*
Charles Erna White	62	*Howell*
Enoch Thomas White		*Lapeer*
Floss Belle White		*Ann Arbor*
Mary Leona White		*Fremont*
Frank Everett Whitehall	30	*South Bend, Ind.*
Bayard Jocelyn Whitman	36	*Chicago, Ill.*
Mary Estelle Whitney	41	*Ann Arbor*
Louise Wicks	34	*Detroit*
Katherine Josephine Wieber		*Houghton*
Clara Helen Wiggins	97	*Ann Arbor*
Ethel Mae Wight	3	*La Porte, Ind.*
Frederic Wilson Willard	70	*Erie, Pa.*
Cecil Howard Williams	53	*Marquette*
Gertha Williams	38	*Detroit*
Oscar Wisner Williams	30	*Lapeer*
Samuel Raymond Williams		*Lapeer*
Harry Graham Wills	28	*Toledo, O.*
Agnes Wilson	38	*Geneseo, N. Y.*
Clara M. Wilson	30	*Geneseo, N. Y.*
D. Maude Wilson		*Alma*
Jane Boyd Wilson	34	*Geneseo, N. Y.*
Lena Wilson	30	*Geneseo, N. Y.*
Lois Wilson	93	*Ann Arbor*
Margaret Isabel Wilson		*Monongahela, Pa.*
Marion Elizabeth Wilson	105	*Park City, Utah*
Russel Harrison Wilson		*Chrisman, Ill.*
Samuel Perry Wilson	95	*Atlas*
Teresa Christine Wilson	55	*Tecumseh*
Marie Alice Winsor	67	*Marshall*
Charles Edward Winstead	30	*Circleville, O.*
Moses E. Wolf	61	*Cincinnati, O.*
Wallace Kirtland Wonders, B.S., *Michigan Agricultural College*	90	*Detroit*
Bessie Elizabeth Wood	30	*Fostoria, O.*
Frank Elmer Wood	104	*Ann Arbor*
Iris Leota Wood		*Ann Arbor*

Lucy Augusta Wood		*Ann Arbor*
Mabel Wood	30	*Ann Arbor*
Robert Galvin Woodcock		*Grand Rapids*
Bertha Cary Woodhams	88	*Corunna*
James Frederick Woodruff		*Detroit*
Mabel Clair Woodward	26	*Detroit*
Philip George Worcester		*Thetford, Vt.*
Anna Elizabeth Workman	60	*Grand Rapids*
Arthur Fleming Wright		*Waukegan, Ill.*
Victor John Wulff	22	*Chicago, Ill.*
Anna Wurster	76	*Ann Arbor*
Oscar Herman Wurster	93	*Ann Arbor*
Mable Alice Yakeley	83	*Lansing*
Mary Amelia Yorker	26	*Lapeer*
Hilgard Bicknell Young	57	*Chicago, Ill.*
Umberto Young		*Chicago, Ill.*
Charles Zimmerman	18	*Wayne*
Karl Zoellner	30	*Portsmouth, O.*

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*Deceased.

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LOUIS C. KARPINSKI, Ph.D.
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H. HAROLD HIGBIE, E.E.

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MORTIMER C. NICHOLS
MARK H. GREGG, B.S.
EDWARD L. HOGAN, B.S.
LYLE A. WHITSIT
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FRANK J. MELLENCAMP, A.B.
WALTER F. COLBY, A.B.
OLIVE C. LATHROP

Special Lecturer

ALFRED C. LANE, Ph.D.

STUDENTS

RESIDENT GRADUATES

NAME.	RESIDENCE
David Homer Clary, B.S. [Ch.E.], 1904, *Holder of Michigan Gas Association Fellowship*	*Monroeville, O.*
Mark Harris Gregg, B.S. [M.E.], 1904	*Ann Arbor*
Edward Lawrence Hogan, B.S. [E.E.], 1904	*Saint Johns*
Sydney Rumney Russel, B.S [M.E.], 1904	*Detroit*

CANDIDATES FOR AN ADVANCED DEGREE STUDYING IN ABSENTIA

NAME	RESIDENCE
Albert John Becker, B.S. [M.E.], 1903	*Grand Forks, N. Dak.*
Isaac De Young, B.S. [C.E.], 1898	*Sault Ste. Marie*
Charles Young Dixon, B.S. [C.E.], 1887	*Amherstburg, Ont.*
Arthur Holmes, B.S. [M.E.], 1904	*Detroit*
Willy Lehnartz, B.S. [M.E.], 1900, A.M., 1901	*South Milwaukee, Wis.*
George Daniel Wuerful, B.S. [M.E.], 1900	*Toledo, O.*

UNDERGRADUATES*

NAME	COURSE	CREDIT	RESIDENCE
Allison Abbott		3	*Geneva, Ill.*
Arthur Alger Abel	M	44	*Ypsilanti*
Theodore Dillion Abeles		8	*Little Rock, Ark.*
George Ernest Ackerman	M	30	*Union City*
†George Fremont Ackley, *a*			*Litchfield*
Samuel Black Adams	Ch	14	*Cincinnati, O.*
Leon Barton Alexander			*Penn*
William Chisholm Allan	M	58	*Cleveland, O.*
Louis Heath Allen	Ch	94	*Grosse Ile*

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*The letters in the column headed Course indicate the line of work the student has chosen to pursue: C denoting civil engineering; M, mechanical engineering; E, electrical engineering; Ch, chemical engineering; Mar, marine engineering; S, miscellaneous studies not leading to any degree. As students are not asked to make choice of course until the beginning of their second year, the absence of a letter indicates that the student is in his first year. The figures in the column headed Credit indicate the number of hours of work taken by the student prior to the beginning of the current academic year, 1904-1905, and completed without conditions, or credited to him on advanced standing. By an hour of work is meant the equivalent of one exercise a week for one semester. A dagger (†) preceding a student's name signifies that he also pursued studies, for the whole or a part of the year, in some other department of the University, indicated by an italic letter following the name, to-wit: *a*, Department of Literature, Science, and the Arts; *m*, Department of Medicine and Surgery; *l*, Department of Law; *p*, School of Pharmacy; *h*, Homœopathic Medical College; *d*, College of Dental Surgery.

Stanley Rindge Allen	S	69	*Grand Rapids*
William Thomas Alliger			*Dowagiac*
Courtenay Derby Allington	M	64	*Saginaw*
Maxwell Alpern	M	61	*Alpena*
Arthur Edwin Anderson			*Norway*
Charles Waldo Anderson	M	27	*Albion*
Edward Lowell Anderson		4	*Grosse Ile*
Lawrence Anderson			*Salt Lake City, Utah*
Niels Malander Anderson	S	61	*Fountain Green, Utah*
Graydon Roy Andrew	M	68	*Detroit*
Robert Edmund Andrews, A.B.	C	130	*Bay City*
Emmett Frank Annis		4	*Denver, Col.*
Harry Augustus Arnold		8	*Miles City, Mont.*
Winfield K. Ash	M	43	*Saint Johns*
Robin Dee Ashley			*Lakeland, Fla.*
Frank Eugene Atkins		8	*Saint Johns*
Floyd Atkinson, A.B., *Mercer University*		13	*Stillmore, Ga.*
Robert Henry Atkinson	E	32	*Norvell*
Louis Evans Ayres			*Detroit*
Eric William Bacharach	M	88	*Cincinnati, O.*
Edward Kennedy Bacon	M	32	*Denver, Col.*
Gordon Harrington Bagg			*Ann Arbor*
John Samuel Bahm		4	*Imlay City*
Louis Rudolph Bailey	C	61	*Big Rapids*
Jesse Burdette Bain	C	47	*Kennedy, N. Y.*
Burton Adams Baker	E	65	*Lansing*
Ray Douglas Baker	C	30	*Fairfield*
Arthur Lee Baldwin	S	56	*Coldwater*
Harold Clark Baldwin			*Grand Rapids*
Melvin Dana Baldwin			*Grand Rapids*
Albert Powers Ball	E	34	*Grand Rapids*
Walter Taylor Ball			*Detroit*
Harold Gillespie Bandfield	E	102	*Portland*
Harry Pickands Banks		23	*Chicago, Ill.*
Newell Barnard	M	67	*Saginaw, West Side*
Joel Martin Barnes	Ch	107	*Quincy*
Bird Lee Barns	E	89	*Petoskey*
Roy Louis Barns			*Delray*
Roland Benner Barrett	C	81	*Adrian*
Edgar Llewellyn Barrows			*Detroit*
William Kenneth Barry	E	8	*Rochester, N. Y.*
John Sergeant Barstow	M	79	*Grand Rapids*
Carleton Fred Bartlett	Ch	18	*Ann Arbor*
Harry Skinner Bartlett	E	41	*Detroit*
John Warren Barton	E	69	*Sturgis*
Joseph L. Barton			*Detroit*

Charles Wesley Bartrem			*Ann Arbor*
Kenower Weimer Bash		4	*Huntington, Ind.*
Edwin Porter Beach			*Birmingham*
Walter Cooley Becker	Ch	44	*Chicago, Ill.*
Herbert Manning Beechinor	E	67	*Mount Vernon, N. Y.*
Roy Beechler	M	51	*Ithaca*
Anthony Joseph Bell		11	*Ishpeming*
John Wesley Bell	C	102	*Eastlake*
Robert Meredith Bellman	M	57	*Toledo, O.*
Marvin Jacob Beltz			*Akron, O.*
George Llewellyn Benbow	Ch	38	*Clayville, N. Y.*
Carl Michael Bergin		4	*Lowell*
Hyrum Manuel Berliant		12	*Chicago, Ill.*
Otto Carter Berry	M	116	*Glendale, O.*
Lawrence Howard Bertsch, A.B., *Indiana University*	M	41	*Cambridge City, Ind.*
Henry Edward Beyster			*Detroit*
Rolla Lavante Bigelow	C	105	*Owosso*
Harry Edmund Bilger, Ph.B., *Bucknell University*	S	45	*Curwensville, Pa.*
Ira Maxwell Birch	M	62	*Detroit*
Charles Arthur Bird		8	*Saginaw*
Harry Eugene Bird		4	*Youngstown, O.*
Carl Otto Bjork	C	22	*Chicago, Ill.*
David Theodore Bjork	C	96	*Chicago, Ill.*
Julius John Blair			*Defiance, O.*
Walter Kellogg Blakeslee	M	79	*Clinton, N. Y.*
†Frank Walker Bliss, *a*	C	41	*Niles*
Homer Newell Bliss	Ch	31	*Buffalo, N. Y.*
Frank Blitz		33	*Detroit*
Gustave Robert Bode			*Iron Mountain*
Ellis Moss Bonney	Ch	62	*Austin, Ill.*
Roy Edmund Boomer	C	37	*Ann Arbor*
Lloyd Logan Boone		8	*Montpelier, O.*
Luke Connable Bootes	C	23	*Jackson*
Robert Lee Boughton	Ma1	30	*Battle Creek*
Stanley Ward Boughton			*Ann Arbor*
Winfield Sanford Bowman		14	*Kansas City, Mo.*
†Guy Bowser, *a*	S	14	*Goshen, Ind.*
Ford E. Boyd		8	*Fenton*
Kenneth Morrison Boyd		4	*Youngstown, O.*
Merlin Boyd	Ch	40	*Detroit*
Wilber Irving Boyles	M	39	*Charlotte*
Claude Brigham Boynton	C	81	*Muskegon*
Robert Hammond Boynton			*Batavia, N. Y.*
Samuel Craighead Brandon	M	71	*Detroit*
Benjamin Nathan Braun	M	76	*Ann Arbor*
Carl Wesley Braznell		4	*Stockdale, Pa.*

Howard Clay Brenizer		12	*Akron, O.*
Harry Leon Brightman	E	39	*Ann Arbor*
Percy Wellington Brilhart	C	57	*Indiana, Pa.*
Howard Gilbert Brinton		18	*Bradford, Pa.*
Henry Holbert Brodhead	M	31	*Buffalo, N. Y.*
Hugh Brodie	C	39	*Jacksonville, Fla.*
Joe Richardson Brooks		4	*Menominee*
Norton Townshend Brotherton	E	38	*Detroit*
Harry Arthur Brown	E	105	*Ann Arbor*
James Arthur Brown	M	119	*Sault Ste. Marie*
Oliver Gilbert Brown		30	*Honeoye, N. Y.*
Worley Jesse Brown	Ch	34	*Sterling, Ill.*
Albert Ernest Brugger	S	30	*Columbus, Neb.*
William James Bryan	Ch	94	*Cincinnati, O.*
Guy Valgean Budlong		8	*Sturgis*
Louis Anton Buese		8	*Republic*
Albert Comstock Burch	Mar	38	*Grand Rapids*
Robert Archibald Burns		8	*Saint Paul, Minn.*
Andrew Gano Burt, Jr.,	M	27	*Chicago, Ill.*
Frank Burton	Ch	37	*Detroit*
Louis Edward Burton	M	97	*Detroit*
Russell Conklin Burton		8	*Detroit*
Eli Franklin Bush	E	65	*Hudson*
Frank Jarvis Bush		8	*Bay City*
Carl Darwin Bushnell		27	*Kalamazoo*
Ray Elon Bushnell	S	25	*Joppa*
Albert Simpson Butler	E	45	*Honesdale, Pa.*
Louis Butler	E	60	*Kendall, Mont.*
Robert Horace Butters		8	*Ludington*
Mark Stone Cady		8	*Sault Ste. Marie*
Samuel Cline Cady			*Sault Ste. Marie*
Arthur Blaine Caldwell	C	28	*York, N. Y.*
George Hoffman Calhoun		24	*New Kensington, Pa.*
Alexander Lagon Campbell	S	87	*Angell*
Harvey Blaine Campbell	M	40	*Battle Creek*
John David Campbell			*Royal Oak*
John Wood Campbell	E	68	*Napoleon, O.*
Emory Carhart	M	31	*Ann Arbor*
Orville Berton Carlisle,	C	96	*Shelby*
Charles Ketchum Carpenter	M	37	*Ithaca, N. Y.*
Dewey L. Carpenter		8	*Orion*
Howard Bruce Carpenter		8	*Pittsburg, Pa.*
Augustus Carrier, Ph.G., *Detroit Coll. of Pharmacy*	S	57	*Detroit*
Ralph Valentine Carrier			*Three Oaks*
John Michael Carroll		7	*Avon, N. Y.*
William F. Carroll		27	*Chicago, Ill.*
Edgar McMurray Carrothers	M	51	*Dewey, Ind. T.*
George Miller Carter	M	26	*Jackson*

Addison Reading Cary		8	*Detroit*
Roger Stephens Cathcart	M	34	*Bay City*
Reed John Caughey			*Erie, Pa.*
Albert Rodney Chandler		8	*Salem, Mass.*
Max Chandler			*Ann Arbor*
Rex Chandler			*Ann Arbor*
Henry Morrison Chapin	S	52	*Ashtabula, O.*
Claude Edward Chappell	C	52	*Charlotte*
Walter Charles			*Detroit*
Irwin Goodrich Chase	Mar	94	*Saint Louis, Mo.*
Charles Timothy Chenevert	M	14	*Defiance, O.*
Arthur Christensen			*Greenville*
Theodore Ecker Christian			*Lakewood, O.*
LaVern Clapp		8	*Vicksburg*
Edward Samuel Clark		8	*West Brattleboro, Vt.*
George Rogers Clark	E	21	*Ann Arbor*
George Winfred Clark	E	77	*Grand Rapids*
Louis Donald Clark		4	*Dexter*
Roy Clark		4	*Youngstown, O.*
William Dennison Clark	M	38	*Detroit*
Kinsley Napier Clarke	M	71	*Chicago, Ill.*
Frederick Humphrey Clary			*Monroeville, O.*
Carl Howard Clement	M	53	*New York, N. Y.*
Joseph Clune, Jr.			*Delray*
Charles Clark Clute	C	29	*Ann Arbor*
Elmer J. Codner	M	69	*Auburn, N. Y.*
Harry Lee Coe		36	*Seattle, Wash.*
Bela Laverne Cogshall	S	70	*Muskegon*
Harrie Newton Cole, A.B.	Ch		*Ann Arbor*
Howard Williams Coleman		8	*Bradford, Pa.*
Leon Christian Coller	E	96	*Detroit*
Blaine T. Colman			*Medina, N. Y.*
Hervey Adolph Colvin	M	31	*Adrian*
Ernest Robert Conroy	C	42	*Northampton, Mass.*
Nathan Roy Cook	E	35	*Jackson*
Ross Miller Coomer	C	100	*West Bay City*
Thurlow Emmett Coon, A.B.	M	145	*Ann Arbor*
Roydon Watt Cooper		8	*Manistee*
Harold Frank Coppes		12	*Nappanee, Ind.*
Herbert Rhemson Cornell	E	45	*Mount Clemens*
Harold Hawley Corson	C	35	*Birmingham*
Harry Morris Courtright		10	*Bay City*
Clyde Curtis Cox		7	*Traverse City*
Edward James Creighton	C	70	*Franklin, Pa.*
Cris Cron	E	70	*Manistee*
Fred Rudolph Cron	C	74	*Manistee*
Charles Henry Croom	E	78	*Jackson*
Harold B. Culbertson	M	62	*Charlotte*

James William Culhane			*Port Austin*
Frank Vincent Cummins			*Jackson*
Peter Augustine Cummins			*Detroit*
Claude Clayton Curtis	M	36	*Battle Creek*
John Spencer Curtis	Ch	35	*Pueblo, Col.*
Martin Hubert Daane	C	34	*Grand Rapids*
Allen Lynn Darr	C	147	*Tacoma, Wash.*
Thomas M. Darrah		11	*Toronto, O.*
Lynn Stephen Darrow		4	*Los Angeles, Cal.*
Thomas Richard Davidson			*Lowell*
Thomas Stephen Davies	M	31	*Detroit*
Cassius Miles Davis		8	*Detroit*
Philip Chapin Davis	M	85	*Kalamazoo*
Samuel James Davison			*Alpena*
Clarence Whiting Davock	M	39	*Detroit*
Archie Smith Day	E	24	*Youngsville, Pa.*
George Berry Dean	E	55	*Nashville*
Arthur James Decker	C	110	*Marlette*
William Harmon DeGraff	M	35	*Detroit*
Joseph Peter DeKorn		20	*Kalamazoo*
Luis Fanor de Lemoine, Jr.	E	44	*Galt, Ont.*
Frank Alexander DeLisle		12	*Delray*
Isaac DePagter	C	73	*Grand Rapids*
James DePree	C	40	*Holland*
M. Jay DePuy		8	*Saline*
Charles Dettweiler	C	43	*Leavenworth, Kan.*
Rollo William Detwiler	M	88	*Owosso*
John Henry DeVisser	M	52	*Kalamazoo*
Ralph Devries	S	32	*Holland*
Theodore DeVries		8	*Drenthe*
Henry Cadby Dewey	C	112	*Shortsville, N. Y.*
Edward Stanton Dibble	E	34	*Detroit*
Harold Shields Dickerson	E	112	*Grand Rapids*
William Henry Distin, Jr.	Mar	93	*Detroit*
Marvin Warde Ditto		8	*South Butte, Mont.*
Wilson Irving Doan	E	15	*Ann Arbor*
Otto Henry Doane	M	46	*Forest Hill*
Charles Walter Dobbins		4	*Marshall*
Robert Moxley Dodge	C	28	*Moscow, N. Y.*
Everett Eugene Dorris	E	33	*Quincy*
Henry James Dotterweich		4	*Olean, N. Y.*
LaVerne Richard Dougherty			*Three Rivers*
Roy Atwater Dowd			*Hartford*
†Chauncey Herbert Dowman, *a*			*West Springfield, Pa.*
Edgar Enos Down			*Detroit*
Herman Otto Dratz	S	77	*Muskegon*
Henry Lane Dresser	C	37	*Ann Arbor*
Carl Lavern Driggs		4	*Palmyra*

Howard Blaine Drollinger	E	36	*Grand Rapids*
Alfred Clayton Duckett			*Ann Arbor*
Harold DuCharme		3	*Detroit*
Robert William Duncan			*Ann Arbor*
John Adams Dunford, B.S., *Michigan Agricultural Coll.*	E	42	*Long Rapids*
Byron William Dunham, B.S., *Kalamazoo College*	M	63	*Oshtemo*
Martin James Dunkirk			*Grand Haven*
William Albert Dunkley		11	*Fredonia, N. Y.*
Arthur Fink Dunnebacke	M	35	*Lansing*
Frank Adelbert Dwelle	E	40	*Jackson*
Edward Daniel Eagle			*Friendship, N. Y.*
George Lewis Earle	M	26	*Detroit*
Roy J. Easton	M	32	*Ann Arbor*
Oscar Alfred Eberbach	Ch	73	*Ann Arbor*
William Philip Edmunds			*Youngstown, O.*
Harry Darwin Edwards		8	*Williamston*
Ralph Lewis Edwards	C	74	*Hinsdale, Ill.*
Walter Emanuel Ehrman	C	82	*Chicago, Ill.*
Hubert Charles Ellis			*Milwaukee, Wis.*
Robert Bisbee Elsworth	M	102	*Wayne*
Arthur Dwight Elwell	M	57	*Standish*
Everett Sprague Elwood		8	*Starkville, N. Y.*
Seth Harrison Ely	E	66	*Rutherford, N. J.*
Warren Edwards Emley	Ch	69	*Philadelphia, Pa.*
Frank Christopher Engelhart		8	*Erie, Pa.*
Baltus Fred Erb		8	*Royal Oak*
Albert de Valois Evans		4	*Cheboygan*
Walter Leonard Eyke	E	33	*Muskegon*
Charles Reed Faben	M	37	*Toledo, O.*
George Stokes Fanning	C		*Detroit*
Gereau Knox Faulds			*Amsterdam, N. Y.*
Galusha Hamilton Fay	M	57	*Los Angeles, Cal.*
John Morton Fedewa	C	29	*Ann Arbor*
John Alexander Ferguson, A.B.,	Ch	160	*Detroit*
John Ashley Ferguson	S	100	*White Pigeon*
Albert Frederick Fillerup	S	85	*Vineyard, Utah*
Carl Herman Frederick Fischer	Ch	108	*Cincinnati, O.*
Harold Clinton Fish	C	38	*Allegan*
Clarence Andrew Fisher	C	73	*Bay City*
John Brewill Fisher	E	78	*Detroit*
Martin Rankin Fisher	C	70	*Inkster*
John Arthur Fishleigh, Jr.	C	34	*Chicago, Ill.*
Walter Turner Fishleigh, A.B.,	C	128	*Chicago, Ill.*
William James Fitzgerald			*Detroit*
Victor Benedict Fitzpatrick	E	32	*Ann Arbor*

Sam Brown Fitzsimmons			*Crestline, O.*
Henry Eells Fletcher	M	43	*Detroit*
Samuel Robert Foote			*Ridgeway*
William Henry Foote	M	69	*Chicago, Ill.*
James Forbes	Mar	39	*Port Huron*
Albert Robinson Ford	M	33	*Jackson*
Eugene Peter Forrestel		8	*Buffalo, N. Y.*
Guy Thomas Foster	E	27	*Dayton, O.*
Frank Roscoe Fowles	M	69	*Auburn, Me.*
Maurice Winslow Fox	M	69	*Detroit*
Harold Robert Francis			*Muscatine, Ia.*
Harry Marshall Francis	E	91	*Hillsboro, N. Dak.*
Albert Phillip Frapwell	S	19	*Greenland*
Glenn Alonzo Freeman	M	31	*Ionia*
Harold Blaine French	E	89	*South Haven*
Robert Wilton French	C	39	*Ann Arbor*
Harold Theodosius Fridborg		2	*Ishpeming*
Jesse Louis Frink	M	39	*Port Huron*
Harry Henry Frost			*Bay City*
Claude Jesse Fry	M	114	*Grand Rapids*
Kanaye Fujita			*Tokyo, Japan*
William Henry Fürst	C	35	*Chicago, Ill.*
James Stewart Fulton	M	110	*Steubenville, O.*
Stanley Lawrence Fyfe	M	95	*Saint Joseph*
Joseph Gale	C	86	*Corunna*
Ralph Galt	Ch	91	*De Kalb, Ill.*
Jésus Villegas Garcia	C	88	*Allende, Mexico*
Fernando Garcinava	C	50	*Purisima, Mexico*
John Carlisle Garrels	M	35	*Detroit*
Clyde Baker Gass	M	27	*Ypsilanti*
Julius Martin Gauss			*Ann Arbor*
Albert Lewis Gayer	E	102	*Flint*
Walter Scott Gearhart	S	66	*Clearfield, Pa.*
Edwin LeRoy Gemmill	M	108	*Sharpsville, Pa.*
Henry Georg	E	33	*Ann Arbor*
Ralph Wadhams George	M	76	*Ypsilanti*
Roy Wellington Gifford	M	74	*Cass City*
William Arthur Gifford	M	74	*Cass City*
John Orpheus Gilbert	E	103	*Medina, N. Y.*
Murray Havens Gilcrest		8	*Cheyenne, Wyo.*
Irving Leo Gill	C	42	*Grand Rapids*
Charles E. Gillette	E	33	*Niles*
Harry Finlay Gilman			*Duluth, Minn.*
Earl Mansfield Gladden	E	72	*Owosso*
Earl D. Glidden	M	101	*Mattawan*
Ralph Othniel Gooding	E	109	*Ann Arbor*
Irving Dean Goodwin	C	71	*Owosso*
Lee Reeves Goodwin	Ch	59	*Owosso*
Clay Winfred Gordon			*Fowlerville*

Jacob David Gordon	E	75	*Detroit*
Ray Foster Gordon	C	48	*Howell*
Francis James Gormely		34	*Newberry*
Fred Quirk Gorton	E	46	*Ypsilanti*
Nelson Barnes Gosline	C	39	*Chicago, Ill.*
Robert Warren Gottshall	C	79	*Toledo, O.*
Carl Louis Gottschalk	E	69	*Quincy*
William Frank Gradolph		4	*Dundee*
Douglas Arnold Graham	C	32	*Chicago, Ill.*
Walter DeWitt Graham		15	*Chicago, Ill.*
Ralph Samuel Gram	C	101	*Menominee*
John Martin Grant	C	68	*Alpena*
Alexander MacDonald Graver	M	107	*Chicago, Ill.*
Mason Wilbur Gray		8	*Pontiac*
Charles Kingman Grear	C	72	*Albion, N. Y.*
Edward Guy Green	C	78	*Charlevoix*
Guy Stevens Greene	M	34	*Ann Arbor*
Herbert Sprecher Grenoble			*Constantine*
Edwin Loomis Grimes	M	25	*Davenport, Ia.*
Ira Rufus Grosvenor		8	*Monroe*
George Guckenberger, Jr.		18	*Cincinnati, O.*
John Henry Guenther		12	*Jamestown, N. Y.*
Charles Henry Haentjens		12	*Bay State, Mass.*
Harry Von Lunen Hager			*Johnstown, Pa.*
George Washington Haggerson	C	92	*Menominee*
Gilbert Ray Haigh	M	105	*Port Huron*
Arthur Sherman Hall			*Detroit*
Gerald Packard Hall	M	11	*Monmouth, Me.*
Omar Israel Hall	M	112	*Ann Arbor*
Walter Albin Hall			*Cassopolis*
Wilton St. John Hall	M	69	*Waverly, N. Y.*
Harry Stevens Hammond	M	26	*Chicago, Ill.*
Charles Augustus Handeyside	C	56	*Wayne*
Fred Kramer Handy	S	7	*Bay City*
Herman Henry Hanink	C	34	*Grand Rapids*
Sidney Twitchell Harding	C	101	*Wichita, Kan.*
Carroll Young Harger		8	*Niles*
George Lloyd Harman	M	61	*Bay City*
Leonard Stanley Harmer	E	30	*Manistee*
John Clement Harrington			*Lake Linden*
William Frank Harris	C	76	*Bay City*
Russell Edwin Harrison	C	108	*Ann Arbor*
Tom Hind Hudson Harrod		12	*Surrey, England*
Joseph Harry		12	*Detroit*
William Gould Harvey		8	*Detroit*
Earl Alanson Haskins		8	*Cortland, N. Y.*
Donald Theodore Hastings	M	40	*Detroit*
Walter Irving Hautau	Ch	37	*Chicago, Ill.*
Ransom Smith Hawley	E	63	*Ludington*

Charles Edward Hayes	C	102	*Saginaw*
Eli Lewis Hayes	M	84	*Reed City*
Edward Alexander Haynes		8	*Port Huron*
James Jacob Haynes	M	39	*Port Huron*
Ralph Smith Heath	C	34	*New Baltimore*
Louis Orloff Heiges			*Traverse City*
William Hendrie	E	47	*Detroit*
James Rowley Hendry	C	68	*Ann Arbor*
George Arthur Henig		12	*Adrian*
Arthur Guy Henning			*Ann Arbor*
William Russell Henry		8	*Williamsport, Pa.*
Ernest Ferdinand Hess		18	*Toledo, O.*
Frank Meek Hiatt		20	*Coldwater*
Percy Rosecrans Hicks	M	37	*Alpena*
Ross Earle Hicks	M	86	*Friendship, N. Y.*
Robert Marshall Hidey	M	42	*Mount Pleasant*
Roy Olin Higgs	E	33	*Forestville, N. Y.*
Frank Cyrus Higley	C	54	*Ann Arbor*
Ross Daniel Hildebrant	C	63	*Howell*
Alba Garfield Hill			*Kalamazoo*
Lyle Steen Hill	S	58	*Berlin Heights, O.*
Ross Oel Hinkle	E	66	*Fenton*
Milton Leroy Hinkley	M	17	*Orchard Lake*
Jesse Frederick Hirschman	C	52	*Detroit*
Welby Ashbury Hoblit			*Lincoln, Ill.*
Walton Beatty Hodges	C	34	*Jackson*
William Robert Hoeck	M	67	*Elmhurst, Ill.*
Ray C. Hoisington	M	32	*Durand*
Fenn Mitchell Holden			*Union City, Pa.*
Howard Kingsbury Holland	C	32	*Cassopolis*
Ray Kingsbury Holland			*Cassopolis*
Francis Hiel Hollister	E	111	*Cambridge, N. Y.*
Harold Wheeler Holmes	M	37	*Detroit*
Louis Norman Holthe	E	42	*Muskegon*
Edward Morton Honey		2	*Bay City*
Ray Phelps Hoover			*Chicago, Ill.*
George Hayes Hopkins	C	57	*Lansing*
John Henry Hoppin	M	46	*Niles*
Robert Ethelburt Hoskin			*Akron, O.*
Lawrence Everett Hotchkiss		8	*Chicago, Ill.*
Charles Kent Houston	C	105	*Detroit*
Fred Wilbur Howard		10	*Toledo, O.*
Horace Henry Howard	M	55	*Churchville, N. Y.*
Perry Eugene Howard		8	*Ionia*
Howard Benson Howie	C	114	*Sault Ste. Marie*
Sidney Merrill Hoyt	C	43	*Jamestown, N. Y.*
George Holland Hubbard			*Ann Arbor*
Alexander Edwin Hubbell			*Ann Arbor*
Fred Shipman Huff			*Gobleville*

Emerson Church Hull			*Ann Arbor*
Arthur Theodore Hunt	E	76	*Ann Arbor*
John Herman Hunt	E	112	*Saranac*
Ormond Edson Hunt	M	40	*Saranac*
Gustavus Adolphus Hyde, Jr.,	C	51	*Cleveland, O.*
Edwin Foy Hyland	Ch	29	*Butte, Mont.*
Thomas Martin Jackson	M	70	*Saginaw*
Earl Nichol James		2	*Vandalia*
John Henry James	M	73	*Detroit*
Frederick Lysle Jeffers		8	*Leavenworth, Kan.*
Walter Samuel Jennens			*Niagara Falls, N. Y.*
Lee Royal Jenney, A.B.	C	122	*Ann Arbor*
Dwight Frank Jennings		8	*Thornton*
Ralph Drury Jennison		19	*LaGrange, Ill.*
Guy Whitcomb Joclyn	C	67	*Salina, Kan.*
George Lorimer Johnson		53	*Chicago, Ill.*
John Clinton Johnson		12	*Fargo, N. Dak.*
Leon Henry Johnson			*Jamestown, N. Y.*
Oliver Fred Johnson	E	39	*Greenville*
Waldo Macdonald Johnson			*Detroit*
Ralph Newton Johnston		4	*Oak Park, Ill.*
William Demorest Johnston	E	88	*Milford*
Benjamin Earl Jones			*Erie, Pa.*
Clarence Ricker Jones	M	92	*Detroit*
Forrest Samuel Jones	S	4	*Alpena*
Carl Jonathan Josenhans	C	69	*Saline*
Hubert Omar Judd		8	*Jackson*
Milo Oliver Judd	E	34	*Ann Arbor*
Frederick Charles Kahle, Jr.	E	76	*Menominee*
George Arthur Kahn			*Grand Rapids*
George Irving Keal	M	73	*Dexter*
Ralph Whittlesey Keeler	M	33	*Detroit*
Glenn Russell Keith			*Battle Creek*
Charles Dane Kelly	M	64	*Mount Clemens*
George Russel Kelley		8	*Detroit*
Andrew Judson Kempton		4	*Barre, Vt.*
Warren Francis Kendrick	M	69	*Ann Arbor*
Clifford Stewart Kennedy	E	69	*Niles*
Stiles Compton Kennedy	Ch	28	*Saint Louis*
Samuel Newton Kephart		4	*Atlanta, Ill.*
Walter Brown Kern	M	36	*Dayton, O.*
Thomas Sylvester Keveney		11	*New York, N. Y.*
Walter Cole Keys	E	38	*Glendale, O.*
Daniel William Kimball	C	131	*Ypsilanti*
Ora C. Kimball	C	37	*Orland, Ind.*
Lloyd Ray Kimmel		13	*Ypsilanti*
Clyde Arthur Kindig	M	32	*Akron, O.*
Justin Thomas Kingdon	C	79	*Detroit*
Clarence Elmer Kinney	Ch	89	*Kansas City, Mo.*

Howard Kipp	C	34	*Greenville*
Arthur Collins Kirby		8	*New Bedford, Mass.*
George Alfred Kirley	C	66	*Sheldon, Vt.*
Charles Samuel Kisinger, B.S., *Adrian College*	C	73	*Adrian*
Landon Main Kitzmiller		8	*Greenville*
William Henry Klein	Ch	62	*Kansas City, Mo.*
William Edmund Kleiner		8	*Detroit*
William Kletzer	E	123	*Grand Rapids*
Frederick Evoy Kneip	C	60	*Ypsilanti*
William Clark Knight	Mar	61	*Westboro, Mass.*
Clarence Carl Knipmeyer	E	39	*Higginsville, Mo.*
Edward Moore Knox	C	37	*Ann Arbor*
George Henry Knutson		14	*Muskegon*
Milton Harris Kramer	Ch	50	*Cadillac*
Clarence Henry Kremers	M	68	*Holland*
August William Kretzschmar		8	*Detroit*
†Ralph Levi Kryder, *a*		8	*Akron, O.*
George Hans Kuhn	C	38	*Chicago, Ill.*
Armen Stephen Kurkjian			*Grand Rapids*
Alvis Kusic		2	*Iroquois, N. Y.*
Arthur Emil Kusterer	C	109	*Grand Rapids*
Rudolph Paul Kutsche		8	*Grand Rapids*
Strawn LaClair			*Ottawa, Ill.*
Albee Lovejoy Ladd			*Osceola, Wis.*
Lewis West Lamb	E	39	*Greenville*
George William Lamke	E	74	*Detroit*
Wilfred Elliott Lamm	E	22	*Danville, Ill.*
Walter Henry Lane	Mar	32	*Friendship, N. Y.*
Ernest Frederick Lang		12	*Detroit*
Joseph Kerr Langfitt	M	26	*Allegheny, Pa.*
Jesse Raymond Langley			*Alva, Okla.*
Samuel Pierpont Langley	M	39	*Cleveland, O.*
Henry Larsen	M	74	*Eastlake*
Arthur Larson		8	*Waterloo, Ia.*
Daniel Whiting Lathrop	M	104	*Jackson*
Percy Mapes Lau			*Detroit*
†Clarence William Lawr, *a*	S	107	*Elk Rapids*
Elmer Claude Lawton	C	32	*Lawton, N. Y.*
George McNutt Lazell	C	81	*Big Rapids*
Arthur White Leet		8	*Fredonia, N. Y.*
Ralph Ray Leffler	C	28	*Naperville, Ill.*
Arthur Edward Legg	Ch	38	*Coldwater*
J. P. Leland			*Hart*
Andrew Leuderink		19	*Kalamazoo*
Rudolph Lewen	C	71	*Detroit*
Frank Hamilton Lewis	E	82	*Flint*
George Eveline Lewis		16	*Ypsilanti*
Washington Bart Lewis	C	32	*Marquette*

Charles Coe L'Hommedieu		8	*Detroit*
George W. Cass Lightner		16	*Detroit*
Raymond Burch Linsley		4	*Three Rivers*
Calvin Arthur Lohmiller	M	39	*Ann Arbor*
Marcus Thompson Lothrop	Ch	63	*Buffalo, N. Y.*
Merrill Rowe Lott			*Elk Rapids*
John Edward Loughrey		4	*Waterport, N. Y.*
Everett John Lovett	M	69	*Chicago, Ill.*
Dwight Everard Lowell	M	74	*Auburn, Me.*
Benjamin Franklyn Lowther, Jr.		21	*Cedartown, Ga.*
Benjamin James Lugers	M	31	*Holland*
Hugh John Lumsden	C	68	*Ann Arbor*
Edgar Lussky	E	50	*Chicago, Ill.*
Harry Milton Luttenton	C	42	*Jackson*
James Duncan Knapp Lyman, A.B.	C	113	*Norwalk, O.*
Alford Samuel Lyndon	S	58	*Plymouth*
Malcolm Patrick Lyon		8	*Sault Ste. Marie*
Ruben McArthur		8	*Lapeer*
John Alexander McCarthy	Mar	34	*Kingsley*
Vincent George McCarthy			*Friendship, N. Y.*
Daniel James McCormack		20	*Ann Arbor*
William Nelson McCoy		8	*Roseville, O.*
Charles Ewing McCrath			*Grand Rapids*
Joseph Newton McCreary		8	*Toledo, O.*
Arthur Tremaine MacDonald	C	111	*Butte, Mont.*
Edward Joseph McDonnell	M	64	*Port Huron*
William McDowell		8	*Niagara Falls, N. Y.*
Robert Bruce McFarlan	C	29	*Flint*
John Alexander McIver			*Sault Ste. Marie*
Alexander Arthur McKay			*Ann Arbor*
Donald Alexander McKenzie	Ch	24	*Ypsilanti*
Henry Westerman McKisson			*Toledo, O.*
Norris Raymond Macklem	C	74	*Marlette*
William Neil McLeod			*Newberry*
Ralph William McMullen	M	107	*Grand Rapids*
Loren Wallace McOmber	E	34	*Ann Arbor*
David MacRitchie	E	37	*Hillsdale*
Andrew Hovgard Madsen			*Ann Arbor*
Roy Alexander Malcolm	C	47	*Chicago, Ill.*
Clement Paul Malona	M	30	*Kennedy, N. Y.*
John Lee Manby			*Battle Creek*
James Harmon Marks			*Grand Rapids*
Juan Marquezado		4	*Des Moines, Ia.*
Benjamin Raymond Marsh		8	*Owosso*
John Albert Martin			*Dixboro*
Robert Clyde Maxwell	C	55	*Worthington, Pa.*
Edward Frank Mayne		8	*LaPorte, Ind.*
Charles Lawrence Mead		8	*Sault Ste. Marie*

William Henry Meese	E	100	*Michigan City, Ind.*
George August Meier	E	33	*Whittaker*
Frederick Henry Meiser		8	*Detroit*
Carl Edward Mensing	M	61	*Chelsea*
Horace Guy Merrick	C	107	*Manistee*
Charles Ernest Merryweather			*Los Angeles, Cal.*
John Leonard Mess	Ch	34	*Benton Harbor*
John Jacob Metz, Jr.			*Wellsville, N. Y.*
Arthur Alexander Meyer	E	39	*Detroit*
John Louis Meyfarth	Ch	65	*Jackson*
†Harry Elmer Mick, *a*	S	14	*Goshen, Ind.*
Horace Winchester Miller, Jr.	Mar	100	*Grand Rapids*
Perry Kay Miller	C	33	*Salamanca, N. Y.*
Raymond Edwin Miller	E	68	*Ypsilanti*
Thomas Harold Miller, B.S., *Washington and Jefferson College*	C	8	*Ingram, Pa.*
Carl Arthur Millis	E	23	*Waterport, N. Y.*
Adelbert Philo Mills	C	70	*Tecumseh*
Arthur James Mills	C	63	*Joliet, Ill.*
Byron Eldred Mills		11	*Detroit*
Courtney Newell Mitchell			*Rushton*
P. T. Mitchell			*Charlotte*
Arthur Bernard Modine		23	*Chicago, Ill.*
Robert Ellsworth Monagle	C	50	*Stanley, N. Y.*
Francis Alexander Montrose	E	35	*Alpena*
James Alfred Moore			*Traverse City*
Lucian Selwyn Moore, Jr.	M	39	*Detroit*
Roy Fowler Moore		8	*Kalamazoo*
William George Moore	S	33	*Portsmouth, O.*
William Van Husan Moore			*Detroit*
Cassus Arden Morford	E	69	*Climax*
George Herbert Morgan			*Youngstown, O.*
Howard Wall Morgan		6	*Milwaukee, Wis.*
Stuart Gaylord Morley	M	76	*Saginaw*
Christopher George Morrison			*Wayne*
George Randolph Morrison	C	28	*Oak Park, Ill.*
Henry McEllroy Munger		8	*Saint Johns*
James Joseph Murphy	C	23	*Detroit*
Ralph Murphy		8	*Bangor*
Walter Austin Murphy		19	*Chicago, Ill.*
John Russell Murray	M	19	*Owosso*
John Sutherland Murray		8	*Detroit*
Harry Albert Musham		4	*Chicago, Ill.*
Noah Brooks Myers	E	69	*Ingalls, Ind.*
Bernard Nagelvoort	M	63	*Detroit*
John Nils Nagle	C	40	*Washington, D. C.*
Forrest Nagler	M	72	*Middleville*
Adrian John Neerken	E	98	*Holland*

Levi Heinrich Neilsen	C	38	*Greenville*
John Martin Nester	C	67	*Lake Linden*
Clarence Percy Nichols	S	63	*Bay City*
Drusus Holbrook Nichols		6	*Lima, Ind.*
Mortimer Cooley Nichols	C	105	*Hastings*
Raymond Fleming Nichols		16	*Spencerport, N. Y.*
Earl Michael Nisen	C	39	*Union Grove, Wis.*
Carl Christian Nissler		12	*Butte, Mont.*
Fred Stephenson Norcross	M	75	*Menominee*
Robert Dewitt Norris	M	28	*Troy, O.*
Carl Uno North		24	*West Bay City*
William Boydston North, M.D., *Toledo Medical College*	Ch	100	*Toledo, O.*
Archie Oakes	M	17	*Grand Haven*
Falconer O'Brien	M	67	*Detroit*
William Wallace Odell	Ch	40	*Chicago, Ill.*
Herman John Oldach	Ch	26	*Northeast, Pa.*
Harley Emanuel Olson	Ch	108	*Grand Rapids*
Wallace Nehemiah Osburn	M	31	*Detroit*
Edward Ottomann, Jr.	C	35	*South Haven*
Harold Marshall Overton		8	*Flint*
Frank Keehn Ovitz	Ch	112	*Mineral Point, Wis.*
Harry Charles Padberg	E	21	*Detroit*
Clifford Alson Paige			*Grand Rapids*
Felipe Gomez Palacio, B.S., *Saint Louis College*		16	*Durango, Mex.*
†Carl Pelton Palmer, *a*			*Grand Rapids*
Henry James Palmer	C	31	*Greenville*
Leigh G. Palmer, A.B.	C	125	*Chelsea*
Percy Austin Palmer	C	70	*Geneva, N. Y.*
Roy Dalliba Palmer	M	32	*Smiths Creek*
Stanley Morton Palmer		8	*Adrian*
Frederic Edwin Park	Ch	73	*Adrian*
Claude Irwin Parker	C	65	*Washington, D. C.*
Ralzemond Drake Parker	E	115	*Detroit*
Burritt Alton Parks		9	*Detroit*
Joseph Archibald Parks	M	104	*Elk Rapids*
Lyle George Parrott			*Mount Clemens*
James William Parry	M	39	*Ann Arbor*
Eric Parson		10	*Washington, D. C.*
Reed Lawson Parsons			*Ingram, Pa.*
John Francis Pascoe		4	*Republic*
Arthur Gray Pashby	E	60	*Constantine*
Charles Lawson Patterson		8	*Pueblo, Col.*
Frank Patterson			*Saginaw*
Harry Lanphier Patton	M	34	*Springfield, Ill.*
Carl Erik Paulson		3	*Omaha, Neb.*
Stanley Walter Payne			*Detroit*
William Lear Pearson	C	108	*Leavenworth, Kan.*

Charles Franklin Peck	C	115	*Allegan*
George Roy Pendell	Mar	57	*Saginaw*
Harry Pennington		8	*Houston, Tex.*
Chester A. Perkins	M	41	*South Bend, Ind.*
Edward Foote Perkins	E	110	*Grand Rapids*
Louis McKenzie Perrin	E	39	*Detroit*
Louis Eugene Perrine	Ch	7	*Jackson*
Don Stuart Perry			*Fayette, O.*
Harry Frederick Petersmeyer		20	*Cherokee, Ia.*
Walter Carl Peterson			*Muskegon*
John Halmer Pettitt		4	*Benzonia*
James Harvey Phinney	S	32	*Detroit*
Claude Owen Pinch	E	78	*Battle Creek*
Roy Alfred Plumb	Ch	70	*Fenton*
Floyd Simpson Poe		8	*Iron Mountain*
George Stanley Porter	M	39	*Jackson*
Ralph Waldo Porter		8	*Galesburg, Ill*
Hoyt Post, Jr.		4	*Detroit*
Rossiter Raymond Potter	M	35	*Kalamazoo*
Clyde Volney Powers		3	*Montpelier, O.*
Whitney Matthews Prall	Mar	74	*Pontiac*
Joseph Major Pratt	M	74	*LaGrange, Ill.*
Walter Mitchell Pratt			*Detroit*
Howes James Quale	Ch	29	*Silver Creek, N. Y.*
Claude Norris Rakestraw		8	*Toledo, O.*
Horace Patton Ramey	C	62	*Carlisle, Ky.*
Christian Rasmussen		8	*Muskegon*
George Alexander Ray	C	34	*Detroit*
Herbert Dwight Raymond	C	34	*South Boardman*
Arthur Mason Rebstock	M	101	*Buffalo, N. Y.*
Forrest Clyde Reed			*Empire*
Russell Shattuck Reed	C	75	*Chicago, Ill.*
Louis John Rehberg			*Ann Arbor*
Carl Arthur Rehm		6	*Sturgis*
Walter Christian Reibling	Ch	110	*Detroit*
Lon Grenard Reid	E	53	*Akron, O.*
Russell James Reid			*Battle Creek*
Henry Fish Reynick			*Saginaw, West Side*
Robert Albert Reynolds	E	28	*Jackson*
James William Rice	C	18	*Dayton, O.*
Louis Nelson Rice	M	100	*Detroit*
Wilder Meloy Rich	C	34	*Grand Rapids*
Rex Densmore Richardson	C	104	*Hastings*
Brent Neville Rickard		15	*Denver, Col.*
Glenn Armour Ricks	C	32	*Taylorville, Ill.*
Edwin Archibald Ridell			*Youngstown, O.*
William Herman Riecks	M	38	*Alpena*
Edward William Rigg		8	*Petoskey*
Maynard Hugh Riley	E	37	*Plymouth*

Herbert Spencer Ripley	C	83	*Galveston, Tex.*
Clyde Louis Ritter		2	*Detroit*
William Joseph Ritzel	E	28	*Owosso*
Archer Willard Robb		8	*Adrian*
Paul Sidney Roberts	C	82	*Grant*
Charles Adolph Robertson	Ch	32	*Muscatine, Ia.*
James Alexander Robertson	C	25	*Escanaba*
Elbert James Robinson	C	43	*Fredonia, N. Y.*
Glenn Lyle Robinson	Ch	29	*Birmingham*
Kenneth Sargent Robinson	C	61	*Ann Arbor*
George Wade Ross	C	63	*Fostoria, O.*
Prescott Burton Ross		8	*Detroit*
Robert Burton Rouse	M	39	*Bay City*
Floyd Arthur Rowe			*Battle Creek*
Lawrence Roys	M	80	*Saginaw*
Mason Pittman Rumney	M	43	*Detroit*
Ernest Amasa Rush		8	*Owosso*
Alexander Stuart Russell			*Petersburg*
Charles Comstock Russell		8	*Grand Rapids*
Willis Thomas Ryan			*Detroit*
Guy Earl Sabin			*Jefferson City, Tenn.*
Roberto G. Sada		16	*Monterey, Mex.*
Walter Edwin Saenger			*Detroit*
Maynard Hubbard Salmon	M	62	*Syracuse, N. Y.*
Henry Louis Sampson	E	32	*Niles*
Leonidas Scranton Sanford	S	23	*Grand Rapids*
Clyde Ashton Saunders	M	37	*Cadillac*
Henry J. Savage		8	*Dowagiac*
Kenneth Ingalls Sawyer	C	35	*Menominee*
Karl Good Schairer	E	17	*Ann Arbor*
Clayton John Schenk		8	*Chelsea*
Andrew George Schlee			*Delray*
Edwin Schneck	Mar	108	*Detroit*
Burton Jacob Schnur		8	*Glencoe, Ill.*
Bort Richtig Schober			*Iron Mountain*
Martin Richtig Schober	C	99	*Iron Mountain*
William Frederick Schregardus	E	58	*Prairie City, Ia.*
Adolph George Schulz			*Fort Wayne, Ind.*
Karl DeWitt Schwendener		8	*Saint Joseph*
Clifford Eugene Scott, B.S., *Earlham College*	C	72	*Saint Johns*
Earle Barnes Scott	Ch	109	*Sterling, Ill.*
George Matthias Scott			*Oxford*
Augustus Jae Sears		12	*Chicago, Ill.*
Dan Klinge Segur		12	*Toledo, O.*
Zina Elliott Sevison	C	74	*Constantine*
William Day Shannon		24	*Wayne*
Harold Caswell Sharpe	M	8	*Grand Rapids*

Frank Thomas Shaw	C	28	*Elm*
Howard Johnson Shaw			*Detroit*
Harold Hutchison Shearer			*Bay City*
James Shearer, 2nd.		8	*Bay City*
Roy William Sheppard			*Oskaloosa, Ia.*
Henry Andrew Sherman	C	67	*Owosso*
Charles McKendree Shortt, Jr.		24	*Sugar Grove, Pa.*
Robert Arnold Shryock		8	*Johnstown, Pa.*
Harry Augustus Shuptrine			*Detroit*
Wesley Banks Sibley			*Pontiac*
Jay Delivan Sidener	C	65	*Grand Rapids*
Raymond Byron Silverman	Ch	68	*Kalamazoo*
John D. Simmers		4	*Grand Rapids*
Orson L. Simpson	C	27	*Freeport*
George Duffield Slaymaker	M	74	*Detroit*
Clarence Henry Sleight	C	89	*Ann Arbor*
John Klein Sloatman		8	*Williamsport, Pa.*
Edward Alonzo Small, Jr.	Ch	31	*Highland Park, Ill.*
Clyde Edward Smedley			*Grand Rapids*
Maurice David Smilansky	E	69	*Detroit*
Donald David Smith	C	129	*Hastings*
Elroy George Smith		8	*Grand Ledge*
†Harold Craig Smith, *a*	C	39	*Detroit*
Hiram Howard Smith		39	*Lamoille, Ill.*
Howard Freeman Smith		8	*Bay City*
James Finlay Smith	M	119	*Detroit*
Ray Francis Smith	M	68	*Mosherville*
Ruby John Smith	Ch	105	*Manistee*
Walter Charles Smith	E	112	*Detroit*
Worth James Smith	E	73	*Saginaw, West Side*
Ray Evart Snider			*Cadillac*
Thomas Chester Soddy			*Calumet*
Alexandro Sorondo			*Buenos Ayres, Argentine Rep.*
Cleon Perry Spangler		8	*Saginaw*
Phineas Hamilton Spaulding	Ch	26	*Charlotte*
Arthur D. Spencer	E	69	*Ann Arbor*
James Spofford, Jr.	M	64	*Northeast, Pa.*
Charles Willett Spooner	C	115	*Grand Rapids*
Paul Horatio Stambaugh			*Youngstown, O.*
Sherwood Hubbard Standish	M	114	*Detroit*
Rex Cameron Starr	C	39	*Coldwater*
Richard Mallery Stearns	M	25	*Elgin, Ill.*
Dee James Sterrett	C	111	*Cherry Creek, N. Y.*
Leigh E. Stevens	C	69	*Dowagiac*
Earl Hugh Stewart	E	66	*Big Rapids*
Charles Edward Stilson		22	*Detroit*
Edward Noble Stimson		35	*Detroit*
Ernest Gustav Stock	S	37	*Sioux City, Ia.*

George Oliver Stoffer	E	96	*Williamston*
James Stokoe	M	94	*Ishpeming*
Louis Lambert Stone		4	*Caledonia*
Ralph Albert Stow	E	96	*Grand Rapids*
Samuel Anthony Stranahan	M	26	*Wausean, O.*
Harry Straub	E	70	*Dowagiac*
†Bernhard Stroh, Jr., *a*		35	*Detroit*
William Yrot Stroh	Ch	51	*Coldwater*
Maurice Joseph Sullivan			*Detroit*
William Shackleford Sullivan	C	61	*Ann Arbor*
James Irving Sutherland	M	39	*Detroit*
Harry Bennett Swan		8	*Detroit*
Edgar Ossian Swanson	E	21	*Elkhart, Ind.*
Benjamin Rand Taber	E	34	*Saginaw*
Roscoe Lovejoy Taft	M	45	*Ann Arbor*
John William Tait			*Detroit*
Thomas James Tervial Tait	E	30	*Ann Arbor*
Carl Edward Tannewitz	M	10	*Grand Rapids*
David Taylor	C	39	*Ann Arbor*
Edward Clark Taylor			*Ann Arbor*
Kenyon Yale Taylor	C	68	*Kenilworth, Ill.*
Theron Clark Taylor			*Detroit*
Delmar Edson Teed	C	100	*Cadillac*
Robert Mortimer Teele	C	12	*Grand Rapids*
William Wolcott Tefft	C	53	*Jackson*
Fred Remington Temple	E	101	*Detroit*
Arthur Gustav William Templin	E	22	*Detroit*
George William Terry	M	35	*South Haven*
Ellis Wilby Test	M	77	*LaPorte, Ind.*
Lawrence Thomas			*Ann Arbor*
James Walter Thompson	C	53	*Grand Rapids*
Charles Astor Thornburgh		15	*Toledo, O.*
Isaac Jay Thorp	E	72	*Toledo, O.*
Henry Hoag Tibbs	C	72	*Grand Rapids*
Ralph Russell Tinkham	C	112	*Ann Arbor*
Oliver Julian Todd			*Nottawa*
George Seely Towar			*Detroit*
Glenn Lewis Tower			*Ann Arbor*
Reginald Heber Towler	Mar	113	*Detroit*
Frank Eugene Town			*Jackson*
Neil Sherman Townsend	M	35	*Ionia*
Ray Elnathan Townsend	C	20	*Leonard*
Fred Hall Tracy	M	37	*Grand Rapids*
Warren Willits Tracy	M	107	*Three Rivers*
Charles Perkins Trantum			*Detroit*
Alfred Alanson Treadway	C	40	*Grand Rapids*
Byram Clarkson Trueblood	Ch	66	*Ann Arbor*
Carmi Jefferson Tryon, Jr.	Ch	107	*Akron, O.*
Charles Corrance Tschirgi		8	*Dubuque, Ia.*

Harold Magnus Tschirgi			*Dubuque, Ia.*
Fred Henry Tuck	M	68	*Belding*
Hubert Southwick Tullock	C	65	*Leavenworth, Kan.*
Mahlon Cleveland Tunison	C	38	*Fenton*
Charles John Ullrich	C	80	*Michigan City, Ind.*
†Frank Sherman Upham, *a*	C	43	*Cleveland, O.*
Carl Herbert Upmeyer	C	133	*Fort Wayne, Ind.*
Jay DeWitt Utley, Jr.	M	72	*Grand Rapids*
Henry Philip Tappan Van Keuren	Mar	56	*Howell*
John Marcus Van Splunter	E	123	*Grand Rapids*
Charles Craigie Van Valkenburgh, Jr.	C	88	*Fresno, Cal.*
Elbert Brunson Van Wagner		8	*Syracuse, N. Y.*
Frank Pierce Van Wye			*Warren, O.*
Philip Donald Van Zile		8	*Detroit*
John Albert Van Zoeren, A.B., *Hope College*	E	59	*Holland*
Donald Olean Vaughan		8	*Dexter*
†Stanley Evans Vernor, *a*		8	*Detroit*
Eugenio Villa, A.B., *School of Mines, Mexico City*	C	101	*Mexico City, Mex.*
Karl Eugene Vogel	C	101	*Chelsea*
Carl Alfred Vogeler		20	*Cincinnati, O.*
Ivan Oscar von Zellen			*L'Anse*
Gerrit Waalkes			*Grand Rapids*
George Otto Wagenseil			*Port Huron*
Oswald Martin Wagenseil	E	34	*Port Huron*
Carl Sweetland Wagner	M	32	*Ann Arbor*
Frederick George Wahl	Ch	115	*Coldwater*
Fred Mallett Walker		27	*Saint Ignace*
Erwin Van Doren Wallace	Mar	32	*Oswego, N. Y.*
John Frederick Wallack, Jr.	E	23	*Chicago, Ill.*
Thomas Robert Walter	C	39	*Kalamazoo*
Victor Simon Walther		16	*Saginaw*
Evelyn Walton		8	*Owosso*
Frank Alanson Walton		12	*Ann Arbor*
Harry Collins Walton	C	32	*Plainwell*
Hiram Lessiter Walton		16	*Pontiac*
Burt Allison Waltz		4	*Akron, O.*
Vernon Lee Walz		8	*Three Rivers*
William James Fairbairn Ward	C	62	*Detroit*
Eugene Taylor Warner	M	32	*Flint*
Hervey Addison Warner			*Vermontville*
Leon Albert Warren	M	32	*Edmore*
Henry G. Watson	C	112	*Muskegon*
Jay Rogers Watson	E	70	*Saline*
Hal C. Weaver	M	30	*Charlotte*
Clifford Leslie Webb		20	*Muskegon*

Thomas Maybury Weber			*Detroit*
Don Byron Webster	M	112	*Ann Arbor*
Frank Edmund Weeks	M	48	*Muskegon*
Harold Julian Weeks	E	35	*Allegan*
Wesley Charles Weideman		4	*West Bay City*
Richard Arod Welch	E	108	*Davisburg*
Grover Cleveland Wellman		17	*Clio*
Roswell Murray Wendell	M	34	*Detroit*
Edward Lucas Wenz		12	*Perrysburg, O.*
Harry Thomas Wessinger			*Ann Arbor*
Kirke Gaylord Westfall	E	40	*Chesaning*
†Cleon DeMont Wheeler, *a*	Ch	24	*Three Rivers*
George Benson Wheeler		8	*Cortland, N. Y.*
Harold Sayre Wheeler	M	65	*Manistee*
Charles John Whipple	E	54	*Chicago, Ill.*
Lemley Preston Whitcomb	Ch	34	*Ypsilanti*
Daniel Asaph White	C	120	*Otsego*
George Wilson White, B.S., *Michigan Agricultural College*	C	106	*Solon*
Henry Berry White	E	10	*Friendship, N. Y.*
James Arba White		8	*Marshall*
Laurence Chauncey Whitlark	M	116	*Ann Arbor*
Harry Gill Whitman	Ch	44	*Grand Rapids*
James Dale Whitmore	M	110	*Toledo, O.*
Lawrence Charles Whitsit	C	39	*Ann Arbor*
Lyle Antrim Whitsit	C	158	*Ann Arbor*
Frederick George Whittington			*East Jordan*
Volney Freeman Wilcox		8	*Hastings*
Charles Sherman Wiley			*Oswego, N. Y.*
Ralph Benjamin Wiley	C	70	*Detroit*
Dean Bailey Wilhelm	M	69	*Ann Arbor*
John Chester Wilkie		4	*Detroit*
Paul Francis Willard			*Union City, Pa.*
John Roy Williams		4	*Salt Lake City, Utah*
Theodore Clark Williams	M	34	*Ann Arbor*
Warren Benjamin Williams	Ch	28	*Hastings*
Joe Willis	M	77	*Chicago, Ill.*
Walter Irving Willis	E	51	*Buffalo, N. Y.*
Harry Webster Wills			*Crystal Falls*
Clyde Elmore Wilson	M	91	*Ann Arbor*
Osmond Charles Wilson			*West Branch*
Samuel Wilson	C	114	*Pinckney*
William Kissick Wilson	E	103	*Ypsilanti*
Harold Douglas Wines	E	37	*Ann Arbor*
William Michael Winkler	M	38	*Saginaw*
Clarence Wise	E	22	*Otsego*
Chester Owen Wisler	C	32	*Detroit*
Frederick Lewis Wolf		4	*Toledo, O.*

Lynn Harper Wood			*Quanah, Tex.*
Charles Harold Woodruff		8	*Ann Arbor*
Frank Joseph Woolfenden			*Detroit*
John Joseph Woolfenden	E	111	*Detroit*
Joseph William Woolley, Jr.	E	34	*Youngstown, O.*
Rew Edward Woolley	E	68	*Ann Arbor*
Thomas Robert Woolley		5	*Youngstown, O.*
George Gilbert Worden		16	*Kalamazoo*
Harry Albert Workman	C	32	*Chicago, Ill.*
John Harvey Wyman	Ch	34	*Ann Arbor*
Philip Warner Yallowich	C	75	*Buffalo, N. Y.*
Clyde Irving Yeagla		8	*Lima, Ind.*
Arrigo Young	M	79	*Chicago, Ill.*
James Herbert Young	M	107	*Cleveland, O.*
William John Young		12	*Charlotte*
Charles Christian Zabriskie	M	40	*Detroit*
Philip Adolph Zang	C	44	*Denver, Col.*
Otto S. Zelner	C	111	*Lake Odessa*
Oscar Waltermer Zelt	C	38	*Sturgis*
William Emil Zietlow	E	43	*Filer City*
Lee Danforth Zimmerman	C	61	*Wayne*
Frederick William Zinser		4	*Grand Rapids*

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***Deceased.**

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JAMES F. BREAKEY, M.D.
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IRA D. LOREE, M.D.
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FRANK J. MELLENCAMP, A.B.
S. FRED EDWARDS, M.S.
GEORGE SLOCUM, M.D.
WILLIAM R. LYMAN, A.B.

Special Lecturers

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EDMUND A. CHRISTIAN, A.B., M.D.
JAMES D. MUNSON, M.D., A.M.
HENRY B. BAKER, M.D., A.M.
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HARRY B. HUTCHINS, Ph.B., LL.D.
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CRESSY L. WILBUR, Ph.M., M.D.
ELIJAH M. HOUGHTON, Ph.C., M.D.

STUDENTS*

RESIDENT GRADUATES

NAME	RESIDENCE
George Edgar Hoffman, A.M., *Monmouth College*, M.D.	*Rochester, Ind.*
Leopold Phelan, M.D., *Queens College*	*Ann Arbor*
Roman Jan Sadowski, M.D., *Michigan College of Medicine and Surgery*	*Detroit*

FOURTH YEAR STUDENTS

NAME	RESIDENCE
Frank Staples Bachelder, B.S.	*Saint Charles, Minn.*
Daniel Emmett Barnett	*Indianola, Ill.*
William Edwin Barstow	*Ithaca*
Robert Osborne Beakes	*Bloomingburg, N. Y.*
Howell Llewellyn Begel, B.S.	*Ann Arbor*
Albert James Bower, A.B.	*Greenville*
Hubbard North Bradley, A.B., *Oberlin College*	*South Haven*
Leslie Shellabarger Brookhart	*Cheyenne, Wyo.*
Charles Henry Brown, A.B.	*Franklin, Pa.*
Roy Alton Brown	*Saginaw*
Ross McClure Chapman	*Watertown, N. Y.*
Walter Daniel Chase	*La Plume, Pa.*
Otto Charles Christmann	*Ann Arbor*
Myron William Clift	*Bay City*
Fred John Conzelman	*Saginaw*
Ralph Gilmore Cook	*Ypsilanti*
Adrian Edward Donker	*Grand Rapids*
Daniel Holton Eaton	*Wequetonsing*
Fred Durfee Fairchild, B.S., *Pomona College*	*Howell*
Vene Duane Farmer	*Lansing*
Lucius Augustine Farnham	*Gregory*
Hugo Abraham Freund, A.B.	*Detroit*
Louis Merwin Gelston, Ph.D.	*Ann Arbor*
Ephraim George Gray, A.B.	*Ludington*
George W. Green, A.B., *Hillsdale College*	*Dowagiac*
Lee Bey Greene, B.S., *North Dakota Agricultural College*	*Sheldon, N. Dak.*

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*A dagger (†) preceding a student's name signifies that he also pursued studies, for the whole or a part of the year, in another department of the University, indicated by an italic letter following the name, to-wit: *a*, Department of Literature, Science, and the Arts; *e*, Department of Engineering; *l*, Department of Law; *p*, School of Pharmacy; *h*, Homœopathic Medical College; *d*, College of Dental Surgery. The letter following the name (without the dagger) indicates that the student is pursuing a combined course, leading to a degree in each of the two departments.

Lewis Henry Hector, A.B.	*Allegheny, Pa.*
Roy Howe	*Battle Creek*
Edward Godfrey Huber, A.B.	*Ann Arbor*
Arthur Wheaton Ide, A.B., *University of Kansas*	*Creston, Ia.*
Buenaventura Jiminez	*Aquadilla, Porto Rico*
Guy Almeron Klock	*Harrisville, N. Y.*
James Harvey Lasater, B.S., *Whitman College*	*Walla Walla, Wash.*
George Henry Lewis	*Greenville*
Lyman Converse Lewis	*Alfred Station, N. Y.*
William Robinson Lyman, A.B.	*Cummington, Mass.*
John Joseph McCann	*Mount Pleasant*
Frank Talbot McCormick	*Detroit*
Donald Ross MacIntyre, A.B.	*Ann Arbor*
Ward J. MacNeal, Ph.D.	*Fenton*
Edward Ross Marshall, A.B.,	*Ross View, Tenn.*
John Alphonso Mason	*Atlanta, Ga.*
Charles W. Merkel, Ph.C.	*Ann Arbor*
James Amos Morehouse	*Big Rapids*
Paul Scott Miller, A.B.	*Marion, O.*
Eugene Wendell Mullen	*Hastings*
Katharine Piatt Raymond, B.S., *University of Cincinnati*	*Cincinnati, O.*
James Ross Reed, A.B.	*Erie, Pa.*
Lily Theresa Roche	*Rochester, N. Y.*
Frederick Constans Rodda	*Pinnebog*
Charles Joseph Rothschild	*Fort Wayne, Ind.*
Fred McKemy Ruby, A.B.	*Union City, Ind.*
Earle Lloyd Russell	*Silverwood*
James Percy Schureman, A.B., *Princeton University*	*Franklin Park, N. J.*
Royston Earl Scrafford	*Gladwin*
Gertrude Belle Clowes Seabolt	*Ann Arbor*
Urban Daniel Seidel	*Stony Run, Pa.*
Wales Melvin Signor	*Plattsburg, N. Y.*
Stephen Herbert Smith, A.B.	*Schoolcraft*
William Joseph Sugnet	*Midland*
Edwin Roy Taylor	*Benton Harbor*
Earl Jesse Thomas	*Findlay, O.*
Clarence Clybourne Urquhart	*Ironwood*
Henry J. VandenBerg	*Zeeland*
Frances Powell Waugh	*Chicago, Ill.*
James Arthur Wilson	*Jackson*
Harro Woltmann	*Hillsdale*

THIRD YEAR STUDENTS

NAME	RESIDENCE
Fred Mortimer Abbott	*Ann Arbor*
Elmer Goodman Balsam	*Manistee*
Robert Hause Beach	*Pontiac, Ill.*
Frederick Beekel, A.B.	*Elyria, O.*
Gordon Berry, A.B., *Amherst College*	*Worcester, Mass.*
Joseph Tower Berry, B.S., *Michigan Agricultural College*	*Belding*
Minnie Ethel Pratt Berry, A.B.	*Rockford*
Elton Pope Billings, A.B.	*Ann Arbor*
Richard Arthur Bolt, A.B.	*Saint Louis, Mo.*
Fritz Albert Brink	*Meckling, S. Dak.*
Eugene Taylor Brunson, A.B.	*Ganges*
William Sanders Chapin, A.B., *Dartmouth College*	*Chelsea, Vt.*
Leroy William Childs, A.B.	*Ann Arbor*
Frederick Earl Clark	*Dansville, N. Y.*
Wayne Alexander Cochrane	*Jackson*
Herbert Everett Coe, A.B.	*Ann Arbor*
Anna Marion Cooke	*Evansville, Ind.*
George Henry Crary	*Saint Olaf, Ia.*
Marshall Laurence Cushman	*Brockton, Mass.*
Charles Carroll Demmer	*Belmont, N. Y.*
David Lewis Dunlap	*Hopkinton, Ia.*
Norma Bertha Elles	*Detroit*
Ralph David Engle, A.B.	*Petoskey*
Oswald Charles Fluemer	*Mount Clemens*
Myron Stephen Gregory	*Ann Arbor*
Edward Goodwin	*Bay City*
Hilbrand J. Hards	*Grand Rapids*
John Frank Hastings	*Detroit*
John Francis Hincks	*Manistee*
Lester Orlo Houghten	*Detroit*
Lloyd Watterson Howe	*Boyne Falls*
Horace John Howk	*Caledonia, N. Y.*
Rea Vernon Howland	*Fairport, N. Y.*
Ivan Lewis Hunt	*Scottville*
David Sanders Jickling	*Flint*
Catherine Johnston	*Taylor, N. Dak.*
Harrie W. Kenfield	*Hastings*
Don DeWitt Knapp, A.B.	*Fenton*
Matthew Kollig, A.B.	*Silver Creek, N. Y.*
David J. Levy, A.B.	*Kalamazoo*
Egbert Theodore Loeffler, B.S., D.D.S.	*Ann Arbor*
Frank Adam McJunkin	*Lucasville, O.*
Fraley McMillan, A.B.	*Berlamont*

Frank Noble Martin	*Saint Joseph*
George Washington More	*Ionia*
†John Walter Needles, A.M., *University of Colorado, d*	*Pueblo, Col.*
Roscoe Charles Olmstead, A.B.	*Pasadena, Cal.*
John McIntyre Osborn, A.B., *Indiana University*	*La Porte, Ind.*
Robert Washington Goldsborough Owen	*Atlanta, Ga.*
Frank Joseph Parizek	*Lidgerwood, N. Dak.*
Paul Morse Patterson	*Kalamazoo*
Esther Kempton Payne	*Gloversville, N. Y.*
Alvin Roy Peebles	*Grand Rapids*
Frank Cleveland Pennell, A.B.	*Lima, O.*
Charles Arthur Peterson	*Tahlequah, Ind. T.*
Eryl Smith Peterson	*Brooklyn*
John Hibbard Pettis, A.B.	*Flint*
Julius Henry Powers, Jr., A.M., *Iowa College*	*New Hampton, Ia.*
Lewis D. Remington	*Fenton*
Walter Henry Rieger	*Sandusky, O.*
Orville Rockwell	*Roaring Branch, Pa.*
Fred Schoepfle, Jr.	*Sandusky, O.*
Lucetta Amelia Smith	*Ionia*
John Snyder	*Vandalia*
Arturo Torregrosa, A.B., *Institute of Porto Rico*	*Aguadilla, P. R.*
Harry Norton Torrey, B.S., *Knox College*	*Creston, Ia.*
Chad Adelbert Van Dusen	*Jasper*
Dell Warner Ward, A.B.	*Fairbank, Ia.*
John Taylor Watkins	*Howell*
Anna Weld	*Rockford, Ill.*
Ray Close Whitmore	*Quincy*
Carl John Wiggers	*Davenport, Ia.*
William G. Winter	*Holland*
Frank Clarence Witter	*Lawrence*
Walter Stuart Woodruff	*Dunkirk, N. Y.*
James Anderson Work, Jr., A.B.	*Elkhart, Ind.*
Hessel Sjoerd Yntema, A.B., *Hope College*	*Zeeland*

SECOND YEAR STUDENTS

NAME	RESIDENCE
Harry Elsworth Aldinger	*Bloomsburg, Pa.*
Hugo Oscar Altnow	*Gaylord, Minn.*
Thaddeus Hoyt Ames, *a*	*Kalamazoo*
Axel Hjalmar Anderson, Ph.G., *Northern Indiana School of Pharmacy*	*Laurium*
Albert Stewart Barr	*Grand Island, Neb.*
Albert Crum Baxter, A.B.	*Ashland, Ill.*
Clayton Charles Benjamin	*Ann Arbor*

John Charles Benson	*Mount Morris*
Frederick Nolton Bigelow	*Holly*
Christian John Brobeck	*Butte, Mont.*
William Henry Burmeister, *a*	*Chicago, Ill.*
Clough Turrill Burnett	*Lansing*
Frederic Clarence Calvert	*Howell*
Lloyd Gully Campbell	*Birmingham*
Claude Ira Canon	*Stoneboro, Pa.*
William Ansley Coad, Ph.G., *State University of Iowa*	*Hull, Ia.*
Bert Wilson Culver	*Coldwater*
Michael Andrew Dailey, A.B., *Dartmouth College*	*North Easton, Mass.*
Vernon Cyrenius David, *a*	*Chicago, Ill.*
Frank T. Edwards	*Dowagiac*
Walter Lloyd Finton	*North Manchester, Ind.*
David Emerson Ford, A.B., *Dartmouth College*	*Weymouth, Mass.*
Roswell Fellows Foster	*Dunkirk, N. Y.*
Floyd Milfred Freeman	*Sturgis*
Joseph Grahek	*Calumet*
Heman E. Grant, A.B., *Albion College*	*Albion*
Abraham Roydan Gregory, Jr., B.S., *Illinois College*	*Jacksonville, Ill.*
James Augustine Jewett Hall	*Detroit*
Clive Ewer Hallenbeck	*Canandaigua, N. Y.*
Annie Fulton Humphreys	*Charlottesville, Va.*
Petko Lazaroff Ivanoff	*Kaily-derè, Bulgaria*
Anna Christine Iverson	*Marcus, Ia.*
Arthur Frederick Jackle	*Dunkirk, N. Y.*
Donald Denny Johnston	*Albion, Ind.*
Arthur John Jones, *a*	*Detroit*
Maurice Paxton Jones	*Imlay City*
Thyra Hildegarde Josselyn	*Detroit*
George Abel Kamperman	*Zeeland*
John Luther Knapp	*Powellsville, O.*
Rudolf Ernst Knapp, B.S. (Phar.)	*Detroit*
Andrew Langenbacher	*Lansing*
Marion Eleanor Leeper, *a*	*Dover, O.*
Saidie Berthalyn Lindeberg	*Miles City, Mont.*
Henry Jay Love, B.S., *Knox College*	*Orion, Ill.*
Floyd Virgil McDonald	*Ann Arbor*
Clifford Wilmot Mack	*Bad Axe*
Robert Gordon McKenzie	*Chester, Ill.*
Alexander Reid McKinney	*Ann Arbor*
George Hudson McLellan, *a*	*Saginaw, West Side*
Frank J. McMichal	*Plainwell*

Ira Albertus Marble, *a*	*Ann Arbor*
William J. Marshall, *a*	*Ann Arbor*
Ernest Gragg Motley	*Virden, Ill.*
Albert Horr Montgomery, *a*	*Chicago, Ill.*
Morton Myers, A.B., *Indiana University*	*Ingalls, Ind.*
Stephen James O'Brien	*Grand Marais*
Leland Eldorus Phipps	*Kankakee, Ill.*
Reginald Copeland Plummer	*Lansing*
Robert Millar Robinson, A.B.	*Kenton, O.*
LaVern Rogers, *a*	*Albion*
Lynn Rogers, LL.B., *Indiana Law School*	*Logansport, Ind.*
Maurice Edgar Rosenwasser	*New York, N. Y.*
Louis Francisco Ross, A.B., *Indiana University*	*Richmond, Ind.*
Gordon Griffith St. Clair	*Ishpeming*
Shibly Nassif Sallume	*Ann Arbor*
Carl Ahrendt Scherer	*New Ulm, Minn.*
Harvey Brown Searcy, A.B., *University of Alabama*	*Tuscaloosa, Ala.*
Harry Alonzo Sibley	*Pontiac*
Isaiah Sicotte	*National Mine*
Charles Eugene Smith	*Commerce*
Franz Emory Solier	*Bryan, O.*
Clayton Myron Spencer	*Kalamazoo*
Charles Henry Sproat, *a*	*Valley Falls, N. Y.*
Gilbert Joshua Thomas	*Butte, Mont.*
Julia Maria Torrey, A.B., *Boston University*	*Cleveland, O.*
James Gerritt Van Zwaluwenburg, B.S.	*Holland*
Rafael Vasquez, A.B., *Fernandez de Madrid College*	*Cartagena, Colombia, South America*
Ralph Eric Walker	*DeLand, Fla.*
Edward August Weisenhorn	*Quincy, Ill.*
Pina M. Welbourn, *a*	*Union City, Ind.*
Edward Howland Weld, *a*	*Rockford, Ill.*
Robert Ellsworth Wells	*Zanesville, O.*
Ernest Sanford Whitlock	*Decatur*
Charles Stuart Wilson	*Detroit*
George Kissick Wilson	*Ypsilanti*
Stanley Lester Wines	*Ruby Valley, Nev.*
Charles Edwin Wood	*Evansville, Ind.*
Neal Naramore Wood	*Quanah, Tex.*
Rex Spencer Kingsford Wood	*Vandalia, Mo.*
Aaron Yaffe	*Ashland, Wis.*

FIRST YEAR STUDENTS

NAME	RESIDENCE
Oliver Ostrom Alexander	*Deadwood, S. Dak.*
Arthur Ludwig Anderson	*Aurora, Ill.*
Clarence Vivian Auld	*Plankinton, S. Dak.*
Charles Hodge Bailey, A.B., *University of Wooster*	*Philadelphia, Pa.*
Looe D. Baker, Jr., *a*	*Spring Lake*
David Woolfolk Barrow	*Lexington, Ky.*
Mark Batties	*Kalamazoo*
George Mitchell Belhumeur	*Champion*
L. Anna Bevier	*Auburn, Ind.*
Marion Elizabeth Blackman	*Brooklyn, N. Y.*
John Alvin Bolton	*McComb, O.*
George Samuel Bond, B.S., *Earlham College, a*	*Richmond, Ind.*
Herman Davidson Boyles	*New Castle, Pa.*
Roger William Brookie	*Cutler, Ind.*
†William Benjamin Bryant, *a*	*Dayton, O.*
Arthur William Bullard	*Hancock*
Glenn Allen Bulson	*Jackson*
Levi Alden Burhans	*Ionia*
Alden Marland Bush, *a*	*Denver, Col.*
Howard J. Bush, *a*	*Fenton*
Clyde Lorenzo Carey	*Elmira, N. Y.*
Frank Everett Carmichael	*Harrisburg, Pa.*
Fred Herman Cole	*Morenci*
Nellie Malvina Cole	*Michigan City, Ind.*
Ward Eugene Collins, *a*	*Decatur*
Leon Clinton Combacker, *a*	*Osceola, Wis.*
Henry Cook	*Owosso*
Gladys Adelpha Cooper	*Ionia*
Floyd Erie Coultrap, Ph.B., *Ohio University*	*Athens, O.*
Earl Jonas Crowthers	*Roscoe, Pa.*
Roy Cuthbertson	*Orchard Lake*
Ernest Welker Dales	*Grand Rapids*
James Aloysius Dardas	*Bay City*
Esteban de Goenaga	*San Juan, Porto Rico*
Willard Woodard Dicker	*Chicago, Ill.*
Theodore Albert Dillman	*Fostoria, O.*
Austice Ford Eastman, A.B., *Princeton University*	*Elmira, N. Y.*
Henry Salem Edmunds	*Ann Arbor*
Sarles Fred Edwards, M.S., *Michigan Agricultural College*	*Belleville*

Walter George Eisenman	*Monroe*
Clayton Ettinger	*Mount Pleasant*
†Casriel Fishman, Ph.C., *p*	*Grand Rapids*
Allan Cameron Fullenwider	*South Haven*
John Gray Gage	*Warren, Pa.*
Charles Harvey George	*Battle Creek*
Bernard Hamlin Glenn	*Howell*
†Joshua Bliss Glenn, *a*	*Hillsboro, O.*
Dean Ely Godwin	*Santa Rosa, Cal.*
Burton Thomas Gordon	*Ludington*
Thomas DeWitt Gordon	*Somerset Center*
Harry Searls Gradle, *a*	*Chicago, Ill.*
Victor Elmo Graham	*Mount Morris*
Earle Pope Gregory	*Sidney, N. Y.*
Charles Hall	*Brookville, Pa.*
Leon Brayton Harris	*Saginaw*
Cornelia Frances Harrison	*Atlanta, Ga.*
Joseph Daniel Heitger, A.B., *Indiana University*	*Bedford, Ind.*
Lon West Haynes, *a*	*Hillsboro, O.*
†Arno Rauch Honberger, *a*	*Toledo, O.*
Harold Alonzo Hume, *a*	*Owosso*
Guy McKevitt Johnson, *a*	*Middleville*
Cecil James Johnston	*Fostoria, O.*
Eber Dunbar Kanaga	*Charlevoix*
Clyde Fenworth Karshner, *a*	*Big Rapids*
John Vincent Kerrigan	*Michigan City, Ind.*
William Sidney Knox	*Detroit*
Emil Otto Krueger	*Michigan City, Ind.*
William Henry Lake	*Dowagiac*
Victor Leo Arthur Langenderfer	*Toledo, O.*
Richard Henry Laning, A.B., *Kenyon College*	*Osaka, Japan*
Mabel Irene Leonard	*Colebrook, Conn.*
Will E. Long	*Negaunee*
Findlay Nathan Loree	*Boise, Idaho*
John Parker Loudon	*Yakima, Wash.*
Edward Stanley Lovett	*Fostoria, O.*
Emmett Ara Lowery	*Manchester*
Elmer George McConnell	*Grand Rapids*
Rollo Eugene McCotter	*Hartford*
Asa McCurdy	*Battle Creek*
Clinton Eber McKinnis	*Nashville*
John D. McKinnon	*Calumet*
Glen Edric Macklem	*Detroit*
Edwine Forest MacPherson	*Fowler*
Mark Marshall, B.S., *Earlham College*, *a*	*Richmond, Ind.*
Clifford David Mercer	*Jerome*

Owen E. Metzger	*Rossville, Ind.*
Bodo E. Miller	*Akron, O.*
Charles William Miller, *a*	*Peoria, Ill.*
Vitaro Mitamura	*Honolulu, Hawaii*
Harrie William Moellering	*Fort Wayne, Ind.*
Richard Hayward Morgan	*Minneapolis, Minn.*
Ashley Walker Morse, *a*	*Ann Arbor*
Thomas Francis Mullen	*Ann Arbor*
Clarence Franklin Murbach	*Archbold, O.*
Anna Isabel Murphey	*Kalamazoo*
Augustus Joseph O'Brien, Ph.C.	*Bessemer*
Freeman Stanislaus O'Brien	*Goshen, N. Y.*
Alexander James O'Keefe	*Mount Clemens*
John William Ovitz	*Platteville, Wis.*
Louis Albert Packard	*Elmira, N. Y.*
William Weldon Pascoe	*Escanaba*
Arthur Thomas Paull, D.D.S.	*Calumet*
Frank Osborn Paull	*Calumet*
Ralph Reynolds Pinckard, *a*	*Kalamazoo*
Clarence Probert	*New Cumberland, W. Va.*
Laurence Rutherford Quillian	*Spokane, Wash.*
Howard Charles Randolph	*Battle Creek*
James Lenox Rea	*Scranton, Pa.*
Walton Karthalo Rexford, *a*	*Ypsilanti*
George Allen Ross	*Jamestown, N. Y.*
George Byron Roth, *a*	*Mount Eaton, O.*
John Thomas Sample, *a*	*Saginaw*
Bernardo Samson, A.B., *Liceo de Manila*	*Candaba, Pampanga, P. I.*
Ralph Chester Schaeffer, A.B., *Lebanon Valley College*	*Hummelstown, Pa.*
Ernst Linwood Schaible	*Shiloh, N. J.*
Albert George Schlink	*New Riegel, O.*
Sara Lucy Smalley	*Dansville, N. Y.*
Edith Smith	*Cynthiana, Ky.*
Harry Chandler Smith	*Ypsilanti*
Karl Beebe Courtlandt Smith	*Vicksburg*
Clarence Snow, B.S., *Harvard University*	*Salt Lake City, Utah*
Emily Sumner Stark, *a*	*Ann Arbor*
Ivan X. Steckle	*Freeport*
Bertha Sabin Stuart, A.B.	*Ann Arbor*
William Sweeny Stucky, A.B., *Bethany College*	*Lexington, Ky.*
Alfred Amos Thurlow	*Battle Creek*
Lawrence Chatfield Towne	*Geneva*
Etta May Trewin	*Mishawaka, Ind.*
Joseph Eugene Vidal	*Stapleton, N. Y.*

Raymond Farnham Wafer	*Olean, N. Y.*
George Matthew Waldeck	*Milwaukee, Wis.*
James Malcolm Walsh	*Ann Arbor*
Louis Edward Walsh	*Ann Arbor*
Charles Lee Washburne	*Caro*
LeRoy Wellstead	*Ann Arbor*
Byron G. R. Williams	*Danville, Ill.*
Richard Paul Williams	*Montpelier, O.*
Raymond Albert Young	*Ann Arbor*

SPECIAL STUDENT

NAME	RESIDENCE
Manuel Mario Guillermety, Ph. C.	*San Juan, Porto Rico*

Department of Law

FACULTY

JAMES B. ANGELL, LL.D., *President*
BRADLEY M. THOMPSON, M.S., LL.B.
JEROME C. KNOWLTON, A.B., LL.B.
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JOHN W. DWYER, LL.M.
GUSTAV STEIN, LL.B.
RICHARD D. T. HOLLISTER, A.M.

Special Lecturers

JOHN B. CLAYBERG, LL.B.
VICTOR C. VAUGHAN, PH.D., M.D., LL.D.
MELVILLE M. BIGELOW, PH.D., LL.B., LL.D.
HENRY C. ADAMS, PH.D., LL.D.
RICHARD HUDSON, A.M., LL.D.
HENRY H. SWAN, LL.D.
FRANK F. REED, A.B.
ALBERT H. WALKER, LL.B.
WILLIAM J. HERDMAN, M.D., LL.D.
JOSEPH H. DRAKE, PH.D., LL.B.
DALLAS BOUDEMAN, M.S.
HARLOW P. DAVOCK, C.E., M.S.
JAMES W. GLOVER, PH.D.

STUDENTS[*]

THIRD YEAR STUDENTS

NAME	RESIDENCE
Herbert Abbott	*Tiffin, O.*
Horace Herbert Adams	*Lawton*
Wilbur Christopher Adams	*Ann Arbor*
William Patterson Allen	*Bellevue, O.*
Olney Carpenter Allen	*Aurora, Ill.*
William Patterson Allen, A.B., *Lincoln University*	*Danville, Va.*
Chester Martin Apel	*Bowling Green, O.*
Harvey H. Atherton	*Ipava, Ill.*
Frederick Watson Bailey	*Sandy Lake, Pa.*
Hundley Bayze Baker	*Alton, Ill.*
Arthur Luke Bancroft, A.B., *Hiram College*	*Hiram, O.*
Edward Norton Barnard	*Grand Rapids*
Arthur Adolph Basse	*Chicago, Ill.*
Leland Flint Bean	*Adrian*
Gaylord Newell Bebout	*Oberlin, O.*
Frank L. Belknap	*Ann Arbor*
Frank Tripp Bennett	*Jackson*
Bernhard Olaus Berge	*Ottawa, Ill.*
Guy Livingston Blair	*Peru, Ind.*
Robert Bruce Blake	*Spokane, Wash.*
Paul Waldemar Leopold Boehm, B.L., *University of Wisconsin*	*Wausau, Wis.*
Charles Lee Brewster	*Beatrice, Neb.*
George L. Brown	*Port Huron*
Delbert Clark Browning	*Sioux City, Ia.*
Louis Paul Buckley	*Petoskey*
Percy Jay Bunning	*Cleveland, O.*
James Edward Burkey	*Lancaster, O.*
William Fulton Burnett	*Dickinson, N. Dak.*
Frederick E. Butler	*Arion, Ia.*
James Edward Cahill	*Saint Paul, Minn.*
Gordon Jared Cain	*Menominee*
William Donald Campbell	*Miles City, Mont.*
Harry Lee Carmichael	*Tacoma, Wash.*
John Daniel Carmody	*Lapeer*

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[*] A dagger (†) preceding a student's name signifies that he also pursued studies, for the whole or a part of the year, in another department of the University, indicated by an italic letter following the name, to-wit: *a*, Department of Literature, Science, and the Arts; *e*, Department of Engineering; *m*, Department of Medicine and Surgery; *p*, School of Pharmacy; *h*, Homœopathic Medical College; *d*, College of Dental Surgery. The letter following the name (without the dagger) indicates that the student is pursuing a combined course, leading to a degree in each of the two departments.

Irving Carpenter	*New London, O.*
Rees Herbert Carr	*Zion City, Ill.*
David Friedley Carson	*Urbana, Kan.*
Harvey Lester Cavender	*Chebanse, Ill.*
Earl Rolin Chapin	*Silverwood*
Albert Edward Chittenden	*Syracuse, N. Y.*
Herbert Lynn Clancy	*Hillsdale*
William Samuel Cochrane	*Delphi, Ind.*
Frank Chase Cole	*Ann Arbor*
Walter Dayton Cole	*San Bernardino, Cal.*
William Cutler Cole, B.S., *Marietta College*	*Marietta, O.*
Don Byron Colton	*Vernal, Utah*
Earl Richard Conder	*Indianapolis, Ind.*
Jay Edmund Condren	*Streator, Ill.*
Thomas Warsop Cooper	*Detroit*
James Beattie Cordiner, A.B., *Washington Agr. Coll. and School of Science*	*Melrose, Idaho*
Peter Thomas Cordiner	*Melrose, Idaho*
Robert Pantland Stuart Cordiner, A.B., *Washington Agr. College and School of Science*	*Melrose, Idaho*
Rex Platt Cornelison, LL.B., *Central University of Kentucky*	*Owingsville, Ky.*
Herbert Lee Cox	*Los Angeles, Cal.*
Douglas Benjamin Crane	*Adrian*
Clayton DeLisle Crawford	*Niles*
Earle Lin Crossman	*East Jordan*
David Henry Crowley	*Leslie*
Frederick Charles Crumpacker, A.B.	*Valparaiso, Ind.*
Harry Lewis Crumpacker, A.B.	*La Porte, Ind.*
Owen Lucas Crumpacker, A.B.	*Valparaiso, Ind.*
James Patrick Cudihy	*Grand Rapids*
Gilbert Archibald Currie	*Midland*
Lowell Daniels, A.B., *Coe College*	*Marion, Ia.*
Edmund Lincoln Devereaux	*Detroit*
James Paul Devereaux	*Hartland*
Edward William Dickey	*Weiser, Idaho*
Harry Augustus Dickey	*Bradford, Vt.*
Theodore Joseph Drees	*Carroll, Ia.*
Frank Flanders Duquette, A.B., *Notre Dame University*, LL.B., *ibid*	*Mendon*
Edward Lawrence Eardly	*Grand Rapids*
Dan Earle, A.B., *Oberlin College*	*South Haven*
Lewis Spencer Eaton	*Chicago, Ill.*
Henry Wirt Eberstein	*Vicksburg*
George Palmer Edmonds	*Wayne*
Otto Augustus Ehlers	*Allegheny, Pa.*
Don Hiatt Elleman	*Columbus, Kan.*

John Frederick Engelke	*Indianapolis, Ind.*
Morgan Walter Evans	*Ebensburg, Pa.*
William Lincoln Fitzgerald	*Kalamazoo*
Arthur Ellis Fixel	*Detroit*
Charles Rae Foster	*Big Rapids*
James Lovat Fraser	*Ypsilanti*
Elwood LeVern French	*Battle Creek*
Jesse McClelland Galloway	*Darlington, Ind.*
Rheu Jay Garty	*Fayette, O.*
Tjark Remmers Gerdes	*Minonk, Ill.*
Joseph Gill	*Mayville*
Charles Emerson Goettman	*Rochester, Pa.*
Louis Lawther Goodnow	*Chicago, Ill.*
Ernest L. Greene	*Dayton, O.*
Wade Greene	*Marshall*
Leslie Henry Gridley	*Savanna, Ill.*
William John Griffin	*Blissfield*
John James Hall	*Boswell, Ind.*
Edward John Hammer	*Hillsboro, Wis.*
Mark Kerr Hance	*Troy, O.*
Leon Winferd Harrington	*Grand Rapids*
Harvey Elias Hartz, A.B., *Franklin and Marshall College*	*Palmyra, Pa.*
Morton Grove Hatch	*Horton*
Clarence George Hill	*Ithaca*
Walter Scott Hogg	*Booneville, Ky.*
Frank Irving Holmes	*Alpena*
Antone Joseph Horsky, Jr.	*Helena, Mont.*
Joe Moritz Hoxie	*Perrinton*
Monroe Allen Hoyt	*Cedar Rapids, Ia.*
Dimmitt Cooper Hutchins, A.B., *Ohio Wesleyan University*	*Maysville, Ky.*
Emra Hobbs Ireland	*Skillman, Ky.*
James Leo Irwin	*Mount Clemens*
Thomas Daniels Jones	*Malad, Idaho*
Charles Lloyd Justice, A.B.	*Ottawa, O.*
Audy Jay Keever	*Fairmount, Ind.*
Charles Tilghman Kemmerer, Jr., Ph.B., *University of Iowa*	*Eldridge, Ia.*
William Merlin Kephart	*Atlanta, Ill.*
Raymond Asbury Kerr, A.B., *Ohio Wesleyan University*	*Tippecanoe City, O.*
Thomas Hill Kingsley, A.B.	*Paola, Kan.*
John Frederic Kirkbride	*Ann Arbor*
James Lewis Knapp	*Wheelersburg, O.*
Benjamin Franklin Leib	*Goshen, Ind.*
Louis Allen Leonard	*Belding*
Walter Nelson Leonard	*Ann Arbor*
William Ballock Leslie, A.B., *College of Emporia*	*Clyde, Kan.*

Michael Ernest Libonati	*Chicago, Ill.*
James Nathan Linton	*Wilmington, O.*
William Russell Lloyd, A.B.	*Catlin, Ill.*
Cass Timothy Lockwood	*Portland*
Harry Lee Lockwood, B.S., *Upper Iowa University*	*Arcdale, Ia.*
William Clarence Losey	*Dayton, Ky.*
Arthur Edward Lott	*Chicago, Ill.*
Earl Lovejoy	*Milford*
Chester Hiram Lowry, B.S., *Oklahoma Agricultural and Mechanical College*	*Stillwater, Okla.*
George Elmer McArthur	*Eaton Rapids*
John Herbert McClintock	*Marcus, Ia.*
William John McCormick	*Calumet*
James McEldowney	*Chicago, Ill.*
Moses McElroy	*Fort Scott, Kan.*
Victor Roy McLucas, A.B., *University of Nebraska*	*Fairbury, Neb.*
Walter Carson McNeil, A.B.	*Detroit*
Donald Grant McVean	*Spring Lake, Ky.*
Leroy Alexander Manchester	*Canfield, O.*
Arthur Cooper Marriott	*Chicago, Ill.*
William Nogel Cameron Marsh, B.S., *Bucknell University*	*Lewisburg, Pa.*
Floyd Julius Mattice	*Sandusky, O.*
Harry Lester May	*Steubenville, O.*
James Maynard, Jr., A.B., *Princeton University*	*Knoxville, Tenn.*
James Nelson Maynard	*Grand Rapids*
Arthur Clark Miller	*Detroit*
George Duncan Milliken, B.S., *Central University of Kentucky, LL.B., ibid*	*Franklin, Ky.*
John Arthur Milotte	*South Lyon*
Henry Miltner	*Lake City*
Augustus John Moilanen	*Calumet*
William Franklin Moyar	*Oil City, Pa.*
Edwin Spencer Murray, A.B.	*Ypsilanti*
Edward James Myers	*Bucyrus, O.*
Willard James Nash	*Cass City*
William Scott Nash	*Mansfield, Ill.*
Allen Burton Nicholas	*East Jordan*
James Howe Nichols	*Lima, Ind.*
Con Kennedy O'Byrne	*Ouray, Col.*
James Calvin Odle	*W. Lafayette, Ind.*
John Henry O'Leary	*Toledo, O.*
James Elbert O'Neill	*Mineral Point, Wis.*
Herbert Pritchard Orr	*Caro*
Lee Lynd Osborn	*LaPorte, Ind.*

Lloyd Lynn Osborn, A.B.	*Ann Arbor*
Roy Melbourne Overpack, A.B.	*Manistee*
Jess P. Palmer	*Penfield, O.*
Arthur Wayne Parry	*Fort Wayne, Ind.*
Earle Lytton Peters	*Ottawa Lake*
Carl George William Plowe	*Francisco*
Harry Alonzo Plummer	*Benton Harbor*
Frank Joseph Powers	*Grand Rapids*
John William Quinn	*Caro*
Frank Winfield Radley	*Peoria, Ill.*
Harry McHenry Rankin	*Washington Court House, O.*
Arturo Reichard, A.B., *Institute of Porto Rico*	*Caguas, Porto Rico*
Charles Arthur Reynolds	*Alpena*
Michael Rinn	*Covington, Ind.*
John Albert Rippél, Ph.B., *Coe College*	*LaPorte City, Ia.*
Charles Adams Robertson	*Ann Arbor*
Carl Christian Rogner	*Richville*
Sandford Chandler Rose	*Detroit*
Reuben Henry Rossman	*Leslie*
Martin Royston	*Buffalo, N. Y.*
Clarence Morgan Russell	*Jackson*
John Arthur Ryan	*Dubuque, Ia.*
Simon Milton Salliotte	*Ecorse*
George Eves Sands	*Millville, Pa.*
Hurst Henry Sargent	*Seymour, Ind.*
Ruben Stephen Schmidt, A.B	*Los Angeles, Cal.*
John Chase Scully, Ph.B., *Yale University*	*Lincoln, Ill.*
Maurice William Seitz	*Benton Harbor*
Clarence Jay Silber	*Milwaukee, Wis.*
George Wesley Silverthorn	*Greenville*
Jesse Simmons	*Austin, Minn.*
Robert Stephenson Simons, B.L., *University of Virginia*	*Charleston, S. C.*
Dave Franklin Smith	*Los Angeles, Cal.*
Elmer George Smith	*Elsie*
Fred Parker Smith	*Alpena*
Irving Henry Smith	*Ann Arbor*
George Washington Sommer	*Stanwood, Wash.*
Henry Francis Steele	*Quinnesec*
Charles William Steiger	*Newton, Kan.*
William Joseph Steinert, A.B., *Central University of Kentucky*	*Versailles, Ky.*
John Harlin Stiles	*Lima, O.*
Edward Ralph Strauss	*Ashland, O.*
Ralph Wood Street	*Saint Joseph, Mo.*

James Albert Stump, B.S., *Colorado Agricultural College*	*Canon City, Col.*
Ray Leslie Swift	*Manistee*
Roy Garfield Swift	*Streator, Ill.*
Albert Valentine Thomas	*David City, Neb.*
Roy William Thomas	*Mayville*
Claude Arthur Thompson	*Towanda, Pa.*
Alfred Todd	*Nottawa*
Emanuel Van Ameringen	*New Haven, Conn.*
Nicholas George Van Sant, M.S., *Cornell College,* LL.B., *Stetson University*	*Sterling, Ill.*
David Russell Vaughn, Jr.	*Ionia*
Bird J. Vincent	*Freeland*
William Waddle	*Somerset, Ky.*
Edward Howland Wagner	*Knoxville, Pa.*
Sidney Elery Walker, B.S., *University of Montana*	*Missoula, Mont.*
Carlton Wood Washburn, A.B.	*Belding*
Harry Booth Washburn, A.B.	*Ann Arbor*
Thomas Robert Waters	*New Madrid, Mo.*
William Wallace Watson	*Mineral Ridge, O.*
Leo Lynch Watkins	*Ann Arbor*
Lewis Joseph Weadock	*Detroit*
William Rawle Weeks	*Allegan*
James Garfield Welch	*Schoolcraft*
Jay B. Weymouth	*Yale*
Burton Kendall Wheeler	*Albany, Ill.*
Homer George White	*Newtown, Pa.*
Roland John White	*Standish*
Clarence Edward Wilcox	*Adrian*
Don Dickinson Williams	*Detroit*
Charles Alfred Wilson	*Adrian*
Floyd E. Winter	*Greenville*
Edward Clarence Wolfe	*Germantown, O.*
Harry Mathias Wolfe	*Germantown, O.*
George Sherman Wright	*Maple Rapids*
Carl Robert Yaeger	*Hartford City, Ind.*
William Henry Yearnd	*Howell*

SECOND YEAR STUDENTS

NAME	RESIDENCE
Alvin Louis Alberti	*Chicago, Ill.*
James Albert Allen	*Keithsburg, Ill.*
Maxwell Blaine Allen	*Charlotte*
Elmer James Alway	*Manistee*
John Willard Anderson	*Pittsburg, Pa.*
Charles Sumner Andrus, *a*	*Hastings*
Ray Martin Armour	*Broken Bow, Neb.*

Donald George Bailey	*Sandy Lake, Pa.*
Carleton Reed Bainbridge	*Los Angeles, Cal.*
Horace Henry Baker	*El Paso, Ill.*
Alfred Henry Barlow	*Corry, Pa.*
Alexander James Barnes, A.B., *Cornell College*	*Cedar Rapids, Ia.*
Albert McClellan Barnes, Jr.	*Allegheny, Pa.*
Ray Forest Barnett	*Ann Arbor*
Francis Harris Bartlett	*Fairmount, Ind.*
Samuel Roy Beal	*Adrian*
Boyd S. Beckington	*Garden Prairie, Ill.*
Glenn C. Beechler, A.B.	*Butler, Ind.*
Howard Hamilton Bell	*Nashville*
James William Bell	*Atlantic, Ia.*
Edward Barton Benscoe	*Bessemer*
Frank Fitzgerald Betty	*Davenport, Ia.*
Kern Miller Beurmann	*Howell*
Divie Bethune Duffield Blain, A.B.	*Detroit*
Charles Edward Blanchard	*Blissfield*
Marshall Thomas Boden	*Detroit*
Walter John Bookwalter	*Danville, Ill.*
Eugene Vincent Boughton	*Evart*
Charles Barton Bowman	*Coon Rapids, Ia.*
Thomas Chauncey Bradfield	*Logansport, Ind.*
Benjamin Paul Brasley	*Pittsburg, Pa.*
LeRoy Klenert Braun	*Hancock*
Charles Orin Briggs, A.B.	*Red Oak, Ia.*
Lawrence Christian Brodbeck	*Saint Marys, O.*
Melville Dadmun Brooks	*Saginaw*
Tracy Daniel Brown	*Ann Arbor*
Harry Cooke Brownlee	*Kingfisher, Okla.*
James Day Brownlee, Jr., A.B., *Princeton University*	*Indiana, Pa.*
J. Irving Bryant	*Cheboygan*
George James Burke	*Ypsilanti*
Solon Ernest Burke	*Wauseon, O.*
Clyde Charles Buttrick	*Ada*
*Frank Elsworth Byers	*Harlan, Ia.*
Harry Winfield Cannon	*Swissvale, Pa.*
Leland Walker Carr	*Anderson*
Charles Blanchard Carter	*Auburn, Me.*
Carroll Caruthers, Ph.B., *Bucknell University*	*Irwin, Pa.*
Edward Hazen Chandler	*Independence, Kan.*
Leroy Francis Childs	*Grand Rapids*
Carl John Christian	*Butte, Mont.*
Hugh Wallace Clarke, A.B.	*Coldwater*

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*Deceased.

Carl Andrew Cooley	*Detroit*
Harry Corgan	*Ontonagon*
Willard Moore Cornelius	*Adrian*
Loren Oldham Crenshaw	*Los Angeles, Cai.*
Burt Allan Crowe	*Owosso*
Joseph Henry Cruthis	*Springfield, Ill.*
Southard John Cutting	*Ann Arbor*
John Dahlem	*Jackson*
Frederick Charles Day	*Kalamazoo*
Charles Lemuel Dibble, A.B., *Cornell University*	*Marshall*
John Netherton Dighton, Jr.	*Monticello, Ill.*
Isaac Jay Doke	*Detroit*
Dennis George Donahue	*Hancock*
Harold Morse Dunphy	*Spokane, Wash.*
Dell Dawes Dutton	*Kansas City, Mo.*
Donald Gilbert Eggerman, Ph.B., *University of Wooster*	*Shawnee, Okla.*
Roy Alton Elwood	*Wiester, Pa.*
Fverett Hall Evans	*North Platte, Neb.*
Edward William Fehling	*Osage, Ia.*
Joseph Wallace Fellheimer, Ph.B., *University of Chicago*	*Grand Rapids*
Max Finkelstein, A.B.	*Alpena*
Robert John Firman	*Harbor Creek, Pa.*
Eugene John Fischer	*Ann Arbor*
James Michael Fitzgerald, A.B., *Creighton College*	*Omaha, Neb.*
Albert Newton Ford	*Battle Creek*
Charles Henry Francis	*Clarksburg, N. J.*
James Serenus Freece	*Ogden, Utah*
Emiliano Gala, A.B., *San Tomas University*	*Sariaya, Tayabas, P. I.*
Arthur Leopold Generaux	*Butte, Mont.*
Harry Oliver Glasser	*Monaca, Pa.*
Albert Gallitan Granger	*Gaines*
Fenton Earl Grigsby	*Greenville, O.*
George Paul Guffin	*Rushville, Ind.*
Carl William Gust	*Morenci*
Clare Jay Hall	*Port Austin*
Herbert Chester Hall	*Ionia*
Herbert Hallenberg	*Fargo, N. Dak.*
Ernest Milton Halliday, A.B.	*Hudson*
Harry Fleming Hamlin	*Canton, Ill.*
Thomas Stevens Hammond	*Chicago, Ill.*
William Gilman Hare	*Hillsboro, Ore.*
Hubert Ezra Hartman	*Auburn, Ind.*
George Elmer Haskins	*Chicago, Ill.*

Susie Payne Hathaway	*Louisville, Ky.*
Robert Earl Helm	*Toledo, O.*
Charles Almer Helsell, A.B.	*Sioux Rapids, Ia.*
Guy Helvering	*Beattie, Kan.*
William May Heston	*Toledo, O.*
Clark Earl Higbee	*Potterville*
William Benjamin Hinkly	*Luverne, Minn.*
Clement Milton Holderman, *a*	*North Manchester, Ind.*
Colonel Charles Hopkins, B.S., *Knox College.*	*Ann Arbor*
John Donald Hotchkiss, Ph.B., *Buchtel College*	*Akron, O.*
Charles Gillette Hubbard	*Kane, Pa.*
David Mansfield Hughes	*Mount Carmel, Pa.*
John Reese Hughes	*Bevier, Mo.*
Reuben Gay Hunt, B.L., *University of California*	*Alameda, Cal.*
William Miles Jackson	*Assumption, Ill.*
Charles Henry Jasnowski	*Detroit*
Ralph Edward Jenney, A.B.	*Ann Arbor*
Francis Xavier Joerger	*Hobbs, Ind.*
Claude Watkins Johnson	*Burlington*
Leo Hirsch Jonas	*Centralia, Ill.*
Archibald Dolphus Jones	*Ann Arbor*
Roscoe D. Jones, A.B., *Monmouth College*	*Monmouth, Ill.*
Louis Heman Katz	*Hartford, Conn.*
Ralph Odell Kaufman	*Spokane, Wash.*
Patrick Joseph Keenan	*East Chicago, Ind.*
Adelbert Ridgely Keller, A.B., *Heidelberg University*	*Tiffin, O.*
Chester Young Kelly	*Casey, Ill.*
Frederick George Bradstreet Kemp	*Manchester, N. H.*
Edwin James Kenny, *a*	*Duluth, Minn.*
Harry Milton King	*Augusta, Ill.*
Oscar Albert Knehans, Ph.B., *Central Wesleyan College*	*Warrenton, Mo.*
Frank Delany Koelbel	*Muskegon*
Harold Mansell Koelbel	*Muskegon*
Austin Lloyd Lathers	*Ann Arbor*
Rollie L. Lewis	*Charlevoix*
Charles Hammond L'Hommedieu, A.B., *Yale University*	*Detroit*
Adelbert B. Lightfoot	*Big Rapids*
Logan Lee Long	*Princess Anne, Md.*
Frank Chandler Longman	*Battle Creek*
Anthony Lucas	*Calumet*
William Alfred Lucking	*Detroit*
Arthur Eugene Lybolt	*Mount Pleasant*

Alfred Hoyle McAdoo	*Chicago, Ill.*
Blaine McCord	*Benton Harbor*
Robert Grosvenor McCreary	*Cleveland, O.*
Ralph Waldo McCrillis	*Denver, Col.*
Maurice Caldwell McGiffin	*Brookville, Pa.*
Joseph Townsend McGrew	*Kansas City, Kan.*
Robert Benjamin McKissick	*Lewiston, Idaho*
Clark Arnold McMillen, B.S., *Cornell College*	*Tampico, Ill.*
Rolla Coral McMillen	*Monticello, Ill.*
Frank Worthington Madison	*Byron, Okla.*
Homer Roubin Mallow	*Union City*
Leedy Markey	*New Carlisle, O.*
Charles Edward Meeker	*Wolverine*
Harry Dorland Michael, A.B., *Earlham College*	*Milton, Ind.*
Ezra Minnemann	*Sidney, O.*
William Joseph Miller	*Masonville*
Samuel Alfred Mitchell, A.B., *University of Arkansas*	*Fayetteville, Ark.*
Joseph R. Mitchem, Jr.	*Dowagiac*
Earl Darius Monroe	*Springfield, Ill.*
Jay Randolph Monroe	*South Haven*
Clark Bradley Montgomery, B.S., *Knox College*	*Wyanet, Ill.*
Herbert Chester Montgomery	*San Jose, Cal.*
Fred Herbert Moore	*Spokane, Wash.*
George Alfred Morris	*Onaway*
Jere Mosher	*Dowagiac*
William Gordon Murphey	*Centralia, Ill.*
Alvin Dow Murphy	*Metamora, Ill.*
Daniel Carl Murphy	*Howell, Ind.*
Loren Edgar Murphy	*Cuba, Ill.*
James Henry Mustard	*Midland*
John Mustard	*Midland*
William Mutschler	*Goshen, Ind.*
John Joseph Neary	*Medina, N. Y.*
Daniel Forster North	*Homer*
Henry Lawrence Obetz, Jr.	*Detroit*
Michael Arthur O'Donnell	*Belvidere, Ill.*
Casper Abraham Ornbaun	*Ornbaun, Cal.*
Frank Anton Ortman	*Chatsworth, Ill.*
George Elmer Osburn	*Sullivan, Ind*
John Jenkin Owens, Jr.	*Scranton, Pa.*
Benjamin Stanley Pagel	*Detroit*
Edward Foster Parker	*Toledo, O.*
Harry H. Partlow	*Grand Ledge*
John Havens Penniman	*Battle Creek*
Lewis Myrl Phelps	*Kibbie*

George Philip	*Fort Pierre, S. Dak.*
Otto Milton Pierce	*Bay City*
Arthur Dunning Quaintance	*Golden, Col.*
Thomas Henry Read, A.B.	*Shenandoah, Ia.*
Harrie William Reading	*Flat Rock*
Andrew Graham Reid, A.B., *Simpson College*	*Indianola, Ia.*
Emil Jesse Reinger	*Escanaba*
John Kirk Renner	*Connellsville, Pa.*
Montgomery Gordon Rice	*Peoria, Ill.*
George C. Richardson	*Chicago, Ill.*
Magnus George Riebeling	*Ann Arbor*
Burton Clarke Rogers	*Dundee*
John Rudin	*East Townsend, O.*
Walter Hall Russell, A.B., *Dartmouth College*	*Plymouth, N. H.*
Raymond Garfield St. John	*Ann Arbor*
Victor St. Rayner	*Portland, Ore.*
Benjamin Franklin Saltzstein	*Detroit*
George Chandler Scarlett, B.S., *Clark University (Atlanta)*	*Brunswick, Ga.*
Clarence John Schroeder	*Rock Island, Ill.*
Walter Edward Schroeder	*Blue Island, Ill.*
Will Harold Scofield	*Colorado Springs, Col.*
Clifford J. Sebring	*Blissfield*
Howard Jackson Seymour, A.B.	*Ravenna, O.*
Leo Nelson Sharpe	*West Branch*
Frank Joseph Sheehan	*Shadeland, Pa.*
James Thaddeus Shipman	*Hamburg, Ark.*
Robert Perry Shorts	*Mount Pleasant*
Thomas Allan Sims, A.B.	*Indianapolis, Ind.*
William Albert Slick	*South Bend, Ind.*
Henry Stewart Slyfield	*Detroit*
Somers Hayes Smith	*Adrian*
Charles Edgar Smoyer	*Wadsworth, O.*
George Groot Snow	*Springfield, S. Dak.*
Frank Leroy Soule	*Hooper, Utah*
James Ezra Spencer	*North Branch*
John Lewis Spengler	*Rochester, Ill.*
Edgerton Benjamin Sprague, A.B., *Cornell College*	*Grundy Center, Ia.*
Albert William Stenger	*Johnstown, Pa.*
Arthur Julian Stevens	*Bangor*
Charles Shirlburt Stewart	*Port Huron*
Willis Gordon Stoner, A.B.	*Valparaiso, Ind.*
Leon Eugene Stowe	*Howell*

Fred Charles Strain, *a*	*Ann Arbor*
Montrose Strasburger	*Detroit*
Theodore Mallory Stuart, A.B., *University of Denver*	*Chariton, Ia.*
Roland George Swaffield	*Coldwater*
Alexander Ramsey Thomas	*Salt Lake City, Utah*
Lawrence Beekman Travers	*Fairview, Ill.*
Harry Raymond Trusler	*Tempe, Ariz.*
Leigh Cilley Turner. A.B., *Dartmouth College*	*Hamilton, O.*
George Vanderwall	*Haines, Ore.*
Lee Matthew VanEtten	*Coopersville*
John Anthony Venn	*Detroit*
Oscar Edward Waer	*Coloma*
Alvin Waggoner	*Gays, Ill.*
Milton Vaughn Ward, B.S., *Central University of Kentucky*	*Greensburg, Ky.*
David Ashley Warner	*Spring Arbor*
Herbert David Warner	*South Bend, Ind.*
Stephen Howard Wattles	*Kalamazoo*
John Vincent Weadock, A.B.	*Saginaw*
Gay Alfred Webb	*Kalamazoo*
Glen Esselton Webb	*Crystal Falls*
Montgomery Webster	*Ionia*
Otto William Wegner	*Riga*
Harry Marvin Weir, Jr.	*Cambridge, Ill.*
Lester Darwin Welch	*Ann Arbor*
Tom Cornell Whitmore, A.B., *Cornell College*	*Knoxville, Ia.*
Roy DeLos Williams	*Washington Court House, O.*
Edmund Alexis Wills	*South Bend, Ind.*
Floyd Jerome Wilson	*Lansing*
John Sherman Wilson	*Springfield, Ill.*
Christian Alfred Winter	*Carrollton*
Adelbert Jesse Wismer	*Midland*
William Scott Wood	*Muskegon*
Henry Woog	*Washington, D. C.*
Clyde Dale Wolfe, B.S., *Bucknell University*	*Lewisburg, Pa.*
Erastus Dilworth Woolley	*Kanab, Utah*
Edward Frank Wunsch	*Detroit*
William Frederick Wunsch	*Detroit*
Erwin Grover Wurster	*Milwaukee, Wis.*
James Garfield Wyman	*Ann Arbor*
Merle Horace Young	*Paw Paw*

FIRST YEAR STUDENTS

NAME	RESIDENCE
Benjamin Morris Achtenberg	*Saint Joseph, Mo.*
Ralph William Aigler	*Bellevue, O.*
John Max Allen	*Charlotte*
Verne Clarence Amberson	*Blissfield*
Frank Byron Ansted	*Connersville, Ind.*
Harold Hunter Armstrong, *a*	*Detroit*
Erwin Thornton Backus	*Detroit*
Ira Philip Baer	*Huntington, W. Va.*
William Francis Bailey, Jr.	*Eau Claire, Wis.*
William Franklin Barnard	*South Bend, Ind.*
John P. Barnes	*Beaver Falls, Pa.*
Stuart Cornell Barnes	*Ionia*
Robert Duncan Bartlett	*Fairmount, Ind.*
Ernest Hampden Bastian	*Holly*
Charles Stearns Bayley	*Fergus Falls, Minn.*
Lucius Albon Beadles	*Quincy, Ill.*
Howard Francis Beechinor	*Mount Vernon, N. Y.*
Charles Bernard Belknap	*Ann Arbor*
William Joseph Belknap	*Ann Arbor*
Milo Bennett	*Kalamazoo*
Sol Bernstein	*Marion, Ind.*
Truman Bentley	*Ellsworth*
Roy L. Black	*Topeka, Ind.*
Joseph Maria Bonelli	*Vicksburg, Miss.*
Grover Cleveland Borders	*Nashville, Ill.*
Harry Samuel Bowman	*Las Vegas, N. M.*
David Schaaff Boucher	*Johnstown, Pa.*
Andrew Daniel Boyd	*Perry, N. Y.*
Victor Bresler	*Detroit*
Allen Don Bridge	*Dallas, Tex.*
Cornelius James Brosnan, *a*	*Dowagiac*
Arch Willard Burnett	*Corunna*
Archibald Edward Carey, *a*	*Eastlake*
John William Carey	*Chicago, Ill.*
Ivan Edgar Chapman, *a*	*Ypsilanti*
Guy Cunningham Christy	*Ford City, Pa.*
Grover Cleveland Cisel	*Allendale, Ill.*
Herbert Watson Clark, *a*	*Las Vegas, N. M.*
Jarrett Nathaniel Clark	*Glenn*
Lincoln Romeiser Clark	*Chillicothe, Mo.*
William Bernard Clark, B.L., *University of Wisconsin*	*Belleville, Wis.*
Lucian John Clarke	*Santa Monica, Cal.*
Hobart Lawrence Clayberg	*Helena, Mont.*
Edward Louis Cleary	*Clyde, N. Y.*
William Clark Cochrane, *a*	*Saint Joseph*

Charles Herman Combs	*Freeport*
Edmund Joseph Condon	*New London, Conn.*
Henry Conger	*Port Huron*
Robert Hinckley Cook	*Saginaw*
†Henry George Coors, Jr., *a*	*Las Vegas, N. M.*
Arthur Adams Corcoran	*Saginaw*
Ralph Waldo Core, A.B., *Simpson College*	*Indianola, Ia.*
Joseph Alexander Coquillard	*South Bend, Ind.*
Charles Albert Cox	*Paducah, Ky.*
Philip Kell Craig	*Des Moines, Ia.*
Ralph Lane Crane	*Saint Louis, Mo.*
Ansel Beecher Curtiss, A.B., *Hiram College*	*Freedom Station. O.*
James Arthur Cutler, *a*	*Nora Springs, Ia.*
Michael Marion Dardas	*Bay City*
James Lucian Davis	*Fayette, Mo.*
John Frank Davis	*Toledo, O.*
Bartley Campbell Davitt	*Saginaw*
Stephen Albion Day, *a*	*Washington, D. C.*
Floyd Anthony Deahl	*Goshen, Ind.*
Ray Deahl	*Goshen, Ind.*
James Alexander Dickson	*Canfield, O.*
Frank Doty, *a*	*Pontiac*
Ray Lindsay Dowdall	*Carrollton, Ill.*
George Henry Downer	*North Thetford, Vt.*
Sheridan Downey	*Laramie, Wyo.*
Frederick Lincoln Driggs	*New York, N. Y.*
Denny Francis Dunlavy	*Ashtabula, O.*
Melvin Taylor Dunlavy	*Trinidad, Col.*
Howard Adolphus Ellis, A.B., *Olivet College*	*Ionia*
William John Embs	*Escanaba*
Louis Glenn English	*Clarksville*
Palmer Loren Fales	*Belding*
Thomas Smith Farrell	*Fort Dodge, Ia.*
Charles Fennell	*Cynthiana, Ky.*
Claude Chesterfield Fogle, A.B., *University of Missouri*	*Lancaster, Mo.*
Earle Eugene Fogle	*Lancaster, Mo.*
Guy Raymond Forbes	*Grand Rapids*
James William Fowler, Jr.	*Deadwood, S. Dak.*
George Arthur Fox, *a*	*Woodland*
Lovett Kenzie Fraser	*Lakeport, Cal.*
Marshall Madison Frisbie	*Flint*
Carl Gard Fulton	*Marcellus*
Hubert John Gaffney	*West Bay City*
Lloyd Franklin Gates	*Garrett, Ind.*
Albert Aloysius Germain	*Saginaw*
Joseph Rogers Gillard, *a*	*Sandusky, O.*

Harry William Ginty	*Fort Wayne, Ind.*
Lewis Dow Glenn	*Viroqua, Wis.*
Charles Henry Goggin	*Alma*
Arthur Kingsley Graves	*Detroit*
Ward Clemens Greenawalt	*Jeannette, Pa.*
Barrett Kerfoot Greenfield	*Pittsburg, Pa.*
Conant Lewis Green	*Attica, Ind.*
Carl James Gugler	*Galion, O.*
Clare McCall Gundry, *a*	*Grand Blanc*
George Christopher Guthrie	*Kankakee, Ill.*
Charles C. Hall	*Boswell, Ind.*
Eugene Teel Hammond, *a*	*Lansing*
Robert Harvey Harris	*Morning Sun, Ia.*
Herbert H. Harrison	*Bad Axe*
Dow Watters Harter	*Akron, O.*
William Edward Hayes	*Clinton, Ia.*
John Edward Heidenreich, B.S., *Bucknell University*	*Mahanoy City, Pa.*
Elmer Henry Heitmann	*Chicago Heights, Ill.*
George Robert Helmer	*Boonville, N. Y.*
William Eugene Henn	*Chicago, Ill.*
Gray Herndon	*Rochester, Ill.*
John Pierre Hertert	*Harlan, Ia.*
Gustav Charles Hertz	*Kansas City, Mo.*
Sherwin Alonzo Hill	*Detroit*
Burritt Havilah Hinman, B.S., *Dartmouth College*	*North Stratford, N. H.*
Van Lee Hood	*Kiowa, Kan.*
Alfred Roy Hulbert	*Oak Park, Ill.*
Edwin Latham Humphrey	*Palmyra*
Isaac Davis Hunt	*Portland, Ore.*
Paul Vincent Hutchins	*Ann Arbor*
Francis Ross Hyland	*Stoughton, Wis.*
Antoine R. Ivins	*Colonia, Juarez, Mex.*
Harris Walker Jackson	*Palmer, Tex.*
Cecil Gordon James	*Ann Arbor*
Arthur Burton Jaquith	*Omaha, Neb.*
Ira Waite Jayne, *a*	*Fenton*
Chancey Hobart Jenkins	*Cuba, Ill.*
Chad Lancelot John	*Uniontown, Pa.*
George William John	*Mount Clemens*
Asa Eli Johnson	*Martinsville, Ill.*
Cecil Disbro Johnson	*Sheridan, Ind.*
Clark Millard Johnson	*Flint*
Ray Bidwell Johnston	*Detroit*
Buddington Walker Jones	*Novi*
Emlyn Ivor Jones	*Lexington, Ill.*
Lorin Hamlin Jones, *a*	*Union City*
Theodore Edward Jones	*Ann Arbor*

Loring Wesley Jordan	*Pleasantville, Ia.*
John Edward Junell	*Ironwood*
Alex W. Jurma	*Laurium*
Albert Henry Keil	*N. Tonawanda, N. Y.*
Harold Alfred Kelly	*Clinton, Ia.*
Raymond Russell Kendrick, *a*	*Saginaw*
Carl Kincaid	*Manila, P. I.*
William Birney Kirk	*Lima, O.*
Robert Henry Kirschman	*Ann Arbor*
Walter Darwin Kline	*Homer*
Louis Edward Kunkel	*Michigan City, Ind.*
Adrian Marinus Landman	*Grand Rapids*
Embert Victor Larson, B.S., *Iowa State College*	*Story City, Ia.*
Edwin Daniel Lawlor	*Chicago, Ill.*
Harley Kenneth Legg, *a*	*Colon*
Anson Wade Lewis	*Harlan, Ia.*
Arthur Wynne Lewis	*Ann Arbor*
John Fletcher Lewis, *a*	*Covington, Ind.*
Milton Bear Loeb	*Lafayette, Ind.*
John Wesley Lyddick	*Buchanan*
John McClellan, A.B., *Albion College*	*Springport*
Harry Ellsworth McCurry	*Carrick, Pa.*
Harrie Robinson McGraw	*Grosse Pointe Farms*
Joseph Albert McKee, Ph.B., *Iowa College*	*Grinnell, Ia.*
Walter Hutchinson McKillip	*Chicago, Ill.*
Glenn Peter McKinley	*Wallace, Idaho*
Frederick Harold McKinney	*Ann Arbor*
William Gregory McMillan	*Gagetown*
Parke Hathaway McMullen	*Grand Rapids*
William John McNabb	*Grand Rapids*
William Wagar Macpherson	*Fowler*
James William Maloney	*Butte, Mont.*
Walter Harlem Maloney	*Arcadia, Wis.*
Cyril Eugene Marks, *a*	*Racine, Wis.*
John Arthur Marley	*Clarinda, Ia.*
Kirby Russel Martens	*Lancaster, O.*
Carmel Martin	*Carmel, Cal.*
Hugh T. Martin, A.B., *Monmouth College*	*Monmouth, Ill.*
Arthur Philippe Marx,	*Port Huron*
James William Maucker	*Rock Island, Ill.*
Hugh Sager Mead, A.B., *University of Chicago*	*Kalamazoo*
John Milton Metheany	*Grand Rapids*
Carson Curtis Metler	*Flat Rock*
Leger James Metzger	*East Toledo, O.*
Charles Jacob Michelet, *a*	*Westby, Wis.*

Edgar Mihalovitch	*Cincinnati, O.*
Carroll Charles Miller	*Olivet*
Francis Rankin Miller, *a*	*Flint*
Joseph Ernest Miller	*Rockwood, Pa.*
William Augustus Miller	*Newell, Pa.*
Selick Jerome Mindes	*Newark, N. J.*
Wayne DeFrees Mitchell	*Goshen, Ind.*
Louis Bolduc Montfort	*Benton Harbor*
Henry Clinton Moyer	*Perkasie, Pa.*
William Albert Mulhern	*Grand Rapids*
James Joseph Murphy	*Dowagiac*
George Horace Neal	*Orion*
George Allen Neeves, Jr.	*Chicago, Ill.*
Chauncey Duerleigh Nichols	*Benton Harbor*
George Frederick Nicholas	*Colorado City, Col.*
Ignatius Francis O'Brien	*Detroit*
Clay Frick Olmstead	*Ludington*
Herbert Sidney Orr	*Bay City*
Carl Eugene Parry, *a*	*Ann Arbor*
John Hayes Passmore	*Norwich, O.*
Theodore Bolivar Perry, Jr.	*Albia, Ia.*
Norman Wallace Peters, A.B., *Heidelberg University*	*Tiffin, O.*
Henry George Pilgrim, A.B., *Hope College*	*Holland*
Arthur Gale Preston	*Saint Joseph*
Hoyt Garrod Post	*Holland*
Walter Griffith Powell	*California, Pa.*
Julius P. Preyer	*Cleveland Heights, O.*
Harry William Priest	*Francesville, Ind.*
James Hull Quinn	*Indianapolis, Ind.*
John Hanrahan Ragan	*Chippewa Falls, Wis.*
Lotan Chilson Read, Jr.	*Grand Rapids*
Carlos Andrew Reading	*Flat Rock*
James Howard Ready	*Farmer City, Ill.*
Charles Edward Rebert	*Springfield, O.*
Milton Ezra Reed	*Cleveland, O.*
Walter Morris Rheinschild	*Los Angeles, Cal.*
Arthur William Rhodes	*Malta Bend, Mo.*
Henry Richard Roach	*Lansing*
Samuel Henry Roberts, *a*	*Ann Arbor*
Joseph Joel Robinson	*Escanaba*
George Sanders Rollin	*Milford*
Carl Alexander Rood	*Sinclairville, N. Y.*
Gustave William Rosenberg, *a*	*Brooklyn, O.*
Stanley Meinrath Rosewater	*Omaha, Neb.*
Robert Bruce Rose	*Schuyler Lake, N. Y.*
Ralph Waldo Rose	*Healdsburg, Cal.*
Joseph Daniel Ross	*Ann Arbor*

Frank Emery Royce, *a*	*Ann Arbor*
Harry Willard Ruby	*Springfield, O.*
Nils Altric Ruonavaara	*Calumet*
Henry Leman Rynerson	*Las Cruces, N. M.*
Guy Northrop St. Clair	*Ishpeming*
Prince Albert Sample	*Milwaukee, Wis.*
Frank Eugene Sanger	*Kalamazoo*
Abram Sapiro	*Detroit*
Homer Herman Schneider	*Chicago, Ill.*
Thomas Harlowe Scott	*Freeman, W. Va.*
Lloyd Moses Shackelford	*Detroit*
Elmer Spessard Shank, *a*	*Mount Morris, Il.*
Philip Paul Sharkey	*Johnstown, Pa.*
Arthur Knoop Sheets	*Troy, O.*
Roland Mark Shivel	*Jones*
David Harper Sibbett	*Shippensburg, Pa.*
Albert Carl Siekman, B.S., *Lawrence University*	*Appleton, Wis.*
Thomas Harry Slusser, *a*	*Downers Grove, Ill.*
Raymond Cornell Sly	*Roscommon*
Ernest Chandler Smith	*Ann Arbor*
Roy John Solfisburg	*Aurora, Ill.*
Hugo Sonnenschein, *a*	*Chicago, Ill.*
Luther Payne Spalding	*Columbus, Ky.*
Ross Charles Sprague	*South Lyon*
William Flurry Stafford	*Georgetown, Ky.*
Charles James Starkey, Jr.	*Ashtabula, O.*
Freeland George Stecker, A.B., *Albion College*	*Croswell*
Kenneth Stevenson	*Detroit*
Lamont Vincent Stewart	*Camden*
John Spoor Stover, *a*	*Milwaukee, Wis.*
Harry Park Streeter	*Galesburg, Ill.*
James Sanson Strickler	*Pittsburg, Pa.*
Torval Elmore Strom	*Escanaba*
John Ashworth Tannehill	*Allegheny, Pa.*
Ralph Morse Tate	*Ann Arbor*
Leonard Taylor	*Winchester, Ill.*
George Emory Thurber	*Providence, R. I.*
Graydon Templeton Treadgold	*Cheboygan*
Carl Frederick Truitt	*Findlay, Ill.*
William Joseph Truscott	*Miles City, Mont.*
Will Uber, A.B., *Grove City College*	*Grove City, Pa.*
Nathan Thomas Viger, *a*	*Detroit*
Albert Douglass Walton	*Dundee, N. Y.*
Fred Lee Warner	*Penn Yan, N. Y.*
James Cornelius Warren	*Holyoke, Mass.*
Joseph Jerome Weadock	*Saginaw*

Samuel Pool Weaver, A.B., *Pennsylvania College*	*Greensburg, Pa.*
Robert Milton Webster	*Detroit*
Carl Nogle Weilepp	*Cisco, Ill.*
William Clyde Weir	*Toronto, O.*
Nicodemus Wernette	*Remus*
Arthur Stevenson White, Ph.B., *Grove City College*	*Grove City, Pa.*
Raynale Almeron Whitehead	*Birmingham*
Justin Rice Whiting	*Saint Clair*
Edward Peter Whitney	*Onondaga*
John Carlyle Wilkes	*Sharon, Pa.*
Alexander Wiley, Jr.	*Chippewa Falls, Wis.*
Frank John Wilkins, LL.B., *Northern Indiana Law School*	*Groveland, Ill.*
Noah Williams, Jr.	*Ida Grove, Ia.*
Thomas Victor Williams, A.B.	*Marquette*
Justice Wilson, A.B., *Yale University*	*Toledo, O.*
William Carleton Wilson	*Evanston, Ill.*
Frank Douglass Winn, Ph.B., *Iowa College*	*Newton, Ia.*
Loyd A. Winship, A.B., *Nebraska Wesleyan University*	*Omaha, Neb.*
Roy Alva Winslow	*Kalamazoo*
Howard Francis Withey	*Reed City*
Wilbur Blackman Worthington	*Steubenville, O.*
Nathaniel Worthy	*Grafton, Ill.*

SPECIAL STUDENTS

NAME	RESIDENCE
Eugene G. Ackerman	*Martinsville, N. Y.*
Leroy Allebach	*New Bethlehem, Pa.*
Thomas Foster Anderson	*Sidney, O.*
Leslie Weymouth Beers	*Sault Ste. Marie*
James Garfield Berkey	*Salem, Ind.*
Thomas Bird	*Saginaw*
Charles Frank Bolin	*Brainerd, Minn.*
Herman Frederick Brede	*Detroit*
Charles Alexander Brinkley	*Linneus, Mo.*
John Frederick Brocksmith	*Cincinnati, O.*
Leonard Camfield Brown	*Niles*
Roy Edmund Brownell	*Oxford*
Robert Arthur Chreste	*Louisville, Ky.*
James Lewis Conley	*Golconda, Ill.*
Philip Stephen Connelly	*Duluth, Minn.*
Russell Waterman Crane	*Chicago, Ill.*
Samuel Thomas Crane	*Petrolea, Ont.*
Fred Mason DeNeffe	*Spokane, Wash.*

Harry Edwin Dickerman	*Westfield, N. Y.*
Rand Moyer Edmundson	*Pittsburg, Pa.*
Frank Ertel	*Stewart, Ill.*
Allen Grant Fletcher	*Sante Fe, N. M.*
James Douglas Flood	*Chicago, Ill.*
Edward Bernard Glass	*Farwell*
William Charles Grace	*Clinton*
Otto Emanuel Haab	*Ann Arbor*
Clarence Anthony Henning	*Lead, S. Dak.*
John Alexander Holland	*Detroit*
George Charles Howard	*Churchville, N. Y.*
Herbert Wakley Hoxie	*Perrinton*
Paul Richard Hughes	*Lima, O.*
Robert Eugene James	*Evanston, Ill.*
Edward Worsham Jeffress	*Edwardsville, Ill.*
Frank M. Kerby	*Fern, Idaho*
Leroy Noble Kilman	*Buffalo, N. Y.*
Beryl Benjamin Laska	*Brooklyn, N. Y.*
Christian Henry Lehman	*Ann Arbor*
Frederic Keith Lewis	*Watseka, Ill.*
Michael James Lyons	*Escanaba*
Frederick Barnett McConnell	*Osborne, O.*
Dustin Wallace McNabb	*Maxwell, Ia.*
Harold Anson McNitt	*Ravenna*
Lloyd McWilliam	*Deerfield*
Carl Joseph Maher	*Fort Dodge, Ia.*
Paul Christian Meyer	*Ann Arbor*
Charles Cornell Moore	*Fort Washakie, Wyo.*
Herbert Adams Otto	*Saginaw, West Side*
Reuben W. Overman, B.S., *Univ. of Idaho*	*Grangeville, Idaho*
Elmer Harry Phelps	*Carson City*
Elbert Norris Pusey	*London Grove, Pa.*
Carlos Cleveland Quinlan	*Petoskey*
William Raymond	*Grundy Center, Ia.*
George Martin Read	*Augusta, Ill.*
Clinton Robert Saltsgiver	*Mishawaka, Ind.*
Thomas Earle Saunders	*Ridgefarm, Ill.*
James Sheely, Jr.	*Vilas, S. Dak.*
Harrison Standish Smalley, Ph.D.	*Ann Arbor*
Abner Wyman Smith	*Saint Johnsbury, Vt.*
George Isaac Smith	*Lumber City, Ga.*
Earl Kent Solether	*Jerry City, O.*
Martin Bernard Stadtmiller	*Indiana, Pa.*
Thor Adolph Thompson	*Cooperstown, N. Dak.*
Carl Ultes, Jr., A.B., *Wittenberg College*	*Springfield, O.*
Ben Wallace Ware	*Hudson*
Theodore August Weinke	*Wausau, Wis.*
Frederick Charles Wright	*Berlin*

The students named below, enrolled in the Department of Literature, Science, and the Arts, also pursue studies in the Department of Law, though not registered in the combined course.

Fabian Bouton Dodds	*Mount Pleasant*
Raymond Charles Fulmer	*East Akron, O.*
Elmer Lee Klise	*Petoskey*

The students named below, enrolled in the Department of Engineering, also pursue studies in the Department of Law.

Newell Barnard	*Saginaw, West Side*
Joe Richardson Brooks	*Menominee*
Walter Scott Gearhart	*Clearfield, Pa.*
John Russell Murray	*Owosso*
George Wilson White, B.S., *Michigan Agricultural College*	*Solon*

School of Pharmacy

FACULTY

JAMES B. ANGELL, LL.D., *President*
*ALBERT B. PRESCOTT, M.D., LL.D., *Dean*
OTIS C. JOHNSON, Ph.C., A.M.
EDWARD D. CAMPBELL, B.S.
MOSES GOMBERG, Sc.D.
JULIUS O. SCHLOTTERBECK, Ph.D., Ph.C., *Secretary*
S. LAWRENCE BIGELOW, Ph.D.
ALVISO B. STEVENS, Ph.C.
EDWARD H. KRAUS, Ph.D.
DAVID M. LICHTY, M.S.
WALTER H. BLOME, B.S.
WILLIAM J. HALE, Ph.D.
CHARLES W. EDMUNDS, A.B., M.D.

Other Instructors and Assistants

HOBART H. WILLARD, A.B.
PAUL E. DEMMLER
SILAS F. SCOTT, Ph.C., B.S.
ADOLPH ZIEFLE, Ph.C.
LINWOOD A. BROWN, Ph.C.
OSCAR A. EBERBACH
CARLOS P. LONG

STUDENTS†

RESIDENT GRADUATES

NAME	DEGREE	CREDIT	RESIDENCE
Herman Louis Becker, Ph.G., *Detroit College*			*Detroit*
Walter Henry Blome, Ph.C., B.S.	M.S.		*Ann Arbor*

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*Deceased.

†The abbreviations in the column headed **Degree** indicate the degree for which the student is studying. Where no abbreviation is given, the student is pursuing miscellaneous studies without being registered as a candidate for a degree. The figures in the column headed **Credit** indicate

Linwood A. Brown, Phar.D., *Louisville College of Pharmacy*, Ph.C.			*Hawesville*
James Richard Huber, Ph.C.	B.S.		*Ann Arbor*
†Casriel Fishman, Ph.C., *m*	B.S.		*Grand Rapids*
Sylvester Woodbridge Hunter, Phar.D., *New York College of Pharmacy*			*Auburn, N. Y.*
Burton Samuel Knapp, B.S., *Holder of the Stearns Fellowship in Research*			*Monroe*
Boyden Nims, Ph.G., *University of Illinois*	B.S.		*Mount Holly, N. C.*
Silas Franklin Scott, B.S., *Michigan Agricultural College*, Ph.C.	M.S.		*Romeo*
James Seymour, Ph.C., B.S.	M.S.		*Ann Arbor*
Adolph Ziefle, Ph.C.		55	*Ann Arbor*

UNDERGRADUATES

NAME	DEGREE	CREDIT	RESIDENCE
Albert J. Bacon	B.S.	62	*Ladd, Ark.*
Frank Symond Baker	Ph.C.		*Flint*
George Barry		42	*Pontiac, Ill.*
Albert Sidney Benham		30	*Chilson*
Louie Boelio			*Petoskey*
James TenBroeck Bowles	B.S.	27	*Paris, Ill.*
Neil Thompson Chamberlin	Ph.C.	34	*Armada*
Singleton Porter Cole			*Ann Arbor*
Angus De Kruif			*Zeeland*
Marion Eugene Dodds	Ph.C.	16	*Pueblo, Col.*
Cornelius John Dutmers	Ph.C.	36	*Grand Rapids*
Jay Alvester Fenner	Ph.C.		*Coldwater*
Daniel Elmer Flood			*Mount Pleasant*
Edward Fox	Ph.C.	26	*Zeeland*
James Cook Fuller	Ph.C.	56	*Kansas City, Mo.*
William Francis Gidley	B.S.		*Holly*
Clarence Friend Gill	Ph.C.		*Ishpeming*
Rudolph Oscar Glatzel		59	*Ann Arbor*
Fred Warren Gordon	B.S.	63	*Howell*

---

the number of hours of work taken prior to the beginning of the current academic year, 1904-1905, and completed without conditions, or credited on advanced standing. By an hour of work is meant the equivalent of one exercise a week for one semester. A dagger (†) preceding a student's name signifies that he has pursued studies, for the whole or a part of the year, in another department of the University, indicated by an italic letter following the name, to-wit: *a*, Department of Literature, Science, and the Arts; *e*, Department of Engineering; *m*, Department of Medicine and Surgery; *l*, Department of Law; *h*, Homœopathic Medical College; *d*, College of Dental Surgery.

Ernst Grether, Ph.D., ***Basel University***			*Detroit*
Roy Roland Guenther			*Ann Arbor*
Miles J. Hall			*Hastings*
Frank Hamilton	Ph.C.	54	*Circleville, O.*
William John Hart	Ph.C.	20	*Brooklyn*
Ralph Anton Helmer	Ph.C.	34	*Paxton, Ill.*
Charles Anton Hauser	B.S.		*Covington, Ky.*
Robert Adolphus Holbrook	B.S.	63	*Ann Arbor*
William Stratton Howard, Jr.	B.S.	24	*Saint Joseph*
Frank J. Jones	Ph.C.		*Hastings*
William Rolland Lehr	Ph.C.	46	*Manchester*
James Harry McCormick			*Kalamazoo*
Otto C. McCreary	B.S.	54	*Fishertown, Pa.*
Mary May Macdonough	Ph.C.	33	*Coldwater*
John Lewis Manion	B.S.	34	*Alpena*
Herman Gottlieb Mayer			*Ann Arbor*
Florence Mabel Meek	Ph.C.	34	*Ann Arbor*
George Bader Morris	Ph.C.	6	*Homer*
John George Nichols	Ph.C.	34	*Belle Plaine, Ia.*
Mark Howard Reasoner	B.S.	25	*Peru, Ind.*
John Benjamin Rieger	B.S.		*Reading, Pa.*
Tod Baldwin Roll	Ph.C.		*Hamilton, O.*
Frank Spencer Schanker	Ph.C.		*Mount Clemens*
Paul Welstead Schanker	Ph.C.		*Mount Clemens*
Cassius McClay Scott			*Romeo*
William A. Simkins			*Coldwater*
James Hungerford Smith	B.S.	25	*Rochester, N. Y.*
John George Stadler	Ph.C.	34	*Kansas City, Mo.*
William Frederick Sudro	B.S.	27	*Elyria, O.*
Lyman H. Taft			*Lowell*
Clark William Thomas			*Ann Arbor*
Clifford Clay Thomas	Ph.C.	27	*Knoxville, Tenn.*
Leon Chichester Travis		38	*Paw Paw*
Hervey Bristow Troxler	B.S.		*Louisville, Ky.*
Raymond Jacob Van Doren	B.S.	94	*Ann Arbor*
Glenn Alfred Van Syckle	Ph.C.	34	*Brighton*
Harry Van Voorhis	Ph.C.		*Bancroft*
Joseph Mose Wolff	Ph.C.	34	*Otsego*
Otis Young	Ph.C.	34	*Manistique*

Homœopathic Medical College

FACULTY

JAMES B. ANGELL, LL.D., *President*
WILBERT B. HINSDALE, M.S., M.D., A.M., *Dean*
ROYAL S. COPELAND, M.D., A.M., *Secretary*
WILLIS A. DEWEY, M.D.
CLAUDIUS B. KINYON, M.D.
DEAN T. SMITH, B.S., M.D.
FREDERICK L. DUNLAP, Sc.D.

Assistant

ADOLPH E. IBERSHOFF, M.D.

Non-Resident Lecturers

OSCAR R. LONG, M.D.
WILLIAM A. POLGLASE, M.D.
ROLLIN H. STEVENS, M.D.
ROBERT M. RICHARDS, M.D.
GEORGE W. ROBERTS, PH.B., M.D.

STUDENTS*

RESIDENT GRADUATE

NAME	RESIDENCE
Seth Jones, M.D., *Michigan College of Medicine*	*Lansing*

FOURTH YEAR STUDENTS

NAME	RESIDENCE
Harold Hill Baker	*Rochester, N. Y.*
M. Andrews Bunker	*Oberlin, O.*
Bertha Anne Davis	*Flint*

---

*A dagger (†) preceding a student's name signifies that he has pursued studies, for the whole or a part of the year, in another department of the University, indicated by an italic letter following the name, to-wit: *a*, Department of Literature, Science, and the Arts; *e*, Department of Engineering; *m*, Department of Medicine and Surgery; *l*, Department of Law; *p*, School of Pharmacy; *d*, College of Dental Surgery. The letter (without the dagger) indicates that the student is pursuing a combined course, leading to a degree in each of the two departments.

Alexander Sanders DeWitt	*Hart*
Minnetta Celina Flinn	*Wabash, Ind.*
Albert Euclid Hinsdale	*Ann Arbor*
Lewis Edward Inman	*Oklahoma City, Okla.*
Ethel May Knisely	*Barberton, O.*
Helen Lee, A.B.	*Bangor, Me.*
Harlen MacMullen	*Bay City*
William Frank Maxwell	*Cardington, O.*
Llewella Maria Merrow	*Norridgewock, Me.*
John Edwin Strain	*Great Falls, Mont.*
Henry Clyde Telford	*Emington, Ill.*
William George Weideman	*West Bay City*

THIRD YEAR STUDENTS

NAME	RESIDENCE
Neil Isaac Bentley	*Ann Arbor*
Frank Winne Brown	*East Syracuse, N. Y.*
Melvin Elwell Chandler	*Ann Arbor*
Leo Josephus Crum	*Owosso*
Adolph Herdman Friedman	*Wind Gap, Pa.*
Neil Goodrich	*Ganges*
Hans Peter Gotfredsen	*Manistee*
James LeRoy Hondorf	*Rochester, N. Y.*
Clarence Ludlam Hyde	*Buffalo, N. Y.*
Seth Harold Jones	*Lansing*
Mary Lorraine Jordan	*Wabash, Ind.*
Howard Bligh Kinyon	*Ann Arbor*
Mabel Hannah Knapp	*Buffalo, N. Y.*
Alfred Eddward Athelstan Mummery	*Ann Arbor*
John Albert Reese	*Eau Claire*
Arthur Paul Schulz	*Fort Wayne, Ind.*
Archer Leroy Smethers	*York, Pa.*
William Howard Smith, B.S., *Michigan Agricultural College*	*Cedar Springs*
Montgomery Alexander Stuart	*Detroit*

SECOND YEAR STUDENTS

NAME	RESIDENCE
Hugh McDowell Beebe	*Sidney, O.*
Charles Grant Burgess	*Brighton*
James Arthur Elson	*Albion, N. Y.*
Rhoda Pamela Farquharson, *a*	*Detroit*
Charles Hill Freeborn	*Wadsworth, O.*
Walter Bertram Gerhard	*Ann Arbor*
Clarence Gillette	*Niles*
Ernest Eugene Godfrey	*Ann Arbor*
Ford Nelson Jones	*Detroit*

Elmer Ewell Owen	*Warsaw, N. Y.*
John Clarence Smith, *a*	*Ann Arbor*
Griffith Edward Thomas	*Scranton, Pa.*
Charles Carroll Waggoner	*Corry, Pa.*

FIRST YEAR STUDENTS

NAME	RESIDENCE
Winifred Adams	*Kansas City, Mo.*
Charles Sherre Ballard	*Grand Rapids*
Charles Barton	*Toledo, O.*
Estel Thorton Becks	*Ann Arbor*
Louise Campagnac	*Bassein, Burmah*
Ralph Emerson Case	*Pittsburg, Pa.*
Avery Allyn Dudley, *a*	*Emporia, Kan.*
James Alton Humphrey	*Lansing*
Anna Bell Lefler	*Centralia, Ill.*
Clarence Harvard Mead	*Mount Pleasant*
Lowell William Smith	*Albion, N. Y.*
Joseph Harry Stonehouse	*Escanaba*
Zoena N. Sutton	*Tonawanda, N. Y.*
Walter Earl Watkins	*Ann Arbor*
Howard Robert Weir	*Warren, O.*
Rupert Kimmel Welliver	*Dayton, O.*
William Harold Wetmore	*Oswego, N. Y.*
Homer Smith Wilson, B.S., *Grove City College*	*Grove City, Pa.*
Nellie Yaba	*Bassein, Burmah*

College of Dental Surgery

FACULTY

JAMES B. ANGELL, LL.D., *President*
NELVILLE S. HOFF, D.D.S., *Secretary*
FREDERICK G. NOVY, Sc.D., M.D.
G. CARL HUBER, M.D.
LOUIS P. HALL, D.D.S.
EGBERT T. LOEFFLER, B.S., D.D.S.
MOSES GOMBERG, Sc.D.
CYRENUS G. DARLING, M.D., *Acting Dean*
SIMON M. YUTZY, M.D.
DAVID M. LICHTY, M.S.
FREDERICK L. DUNLAP, Sc.D.
ROBERT B. HOWELL, D.D.S.
MARCUS L. WARD, D.D.S.
ELMER L. WHITMAN, D.D.S.
RUSSELL W. BUNTING, D.D.S.

Special Lecturers

WILLIAM T. REEVES, D.D.S.
EDWARD B. SPALDING, D.D.S.
MILTON T. WATSON, D.D.S.

STUDENTS*

RESIDENT GRADUATES

NAME	RESIDENCE
Clare George Bates, D.D.S.	*Durand*
Elwyn Butts, D.D.S.	*Goshen, Ind.*
William R. Calhoun, D.D.S.	*Milan*
Frank Leo Cunningham, D.D.S.	*Manistee*
Grant Simon Hadley, D.D.S.	*Coldwater*

---

*A dagger (†) preceding a student's name signifies that he has pursued studies, for the whole or a part of the year, in another department of the University, indicated by an italic letter following the name, to-wit: *a*, Department of Literature, Science, and the Arts; *e*, Department of Engineering; *m*, Department of Medicine and Surgery; *l*, Department of Law; *p*, School of Pharmacy; *h*, Homœopathic Medical College.

Claude Elton Hathaway, D.D.S.	*Ionia*
Frank Ward Howlett, D.D.S.	*Jackson*
James Herbert Jones, D.D.S.	*Parma*
William Preston Jones	*Pennville, Ind.*
Alexander H. Kinmond, D.D.S.	*Grand Marais*
Harry Brown McMillan, D.D.S.	*Grand Rapids*
Sidney Gould Main, D.D.S.	*L'Anse*
John Frank Martin, D.D.S.	*Ann Arbor*
Wilsie David Reed, D.D.S.	*Tecumseh*
Grace Pearl Rogers, D.D.S.	*Toledo, O.*
Frank William Shores, D.D.S., *Baltimore Dental College*	*Saginaw*
Eugene Frederick Strom, D.D.S., *Chicago College of Dental Surgery*	*Chicago, Ill.*
Ervin Stephen Ulsaver, D.D.S.	*Pennville, Ind.*
Frank Prescott Watson, D.D.S.	*Marine City*

THIRD YEAR STUDENTS

NAME	RESIDENCE
James Owen Adams	*Poplar Bluff, Mo.*
Leonard Copeland Austin	*Ann Arbor*
Clayton Garfield Bailey	*Ann Arbor*
Bion Lamott Bates	*Elsie*
Wayne William Brown	*Menominee*
James Alfred Burrill	*Detroit*
Leonard Burnham Chapin	*Milan, O.*
William Frederick Dodsley, LL.B.	*Ann Arbor*
Henry Seth Edmonds	*Galt, Ont.*
Raymond Newell Fisher	*Flint*
Frederick Charles Godfrey	*Jonesville*
Russell George Gordainier	*Maple Rapids*
Arthur Charles Hamm	*Bath, Ont.*
John Alfred Hawley	*Sarnia, Ont.*
Bert H. Honeywell	*Plainwell*
Harry John Horton	*Greenland*
Clare Addison Howland	*Rochester, N. Y.*
Bertrand John Howlett	*Ann Arbor*
George Henry Kemp, LL.B.	*Detroit*
William Gordon Slaughter Letterman	*Saint Louis, Mo.*
Bert Courtnay Le Vanseler	*Milford*
Robert McCann	*Mount Pleasant*
William F. B. McDonald	*Mount Pleasant*
Arthur Francis Marvin	*Ypsilanti*
Ralph Fern Merritt	*Potterville*
Chester Field Miller	*Chili Center, N. Y.*
Henry Bush Moore	*Durand*
†John Walter Needles, A.M., *University of Colorado, m*	*Pueblo, Col.*
Charles Bradish Newcomb	*Pierson*

Glenn Scott Patterson	*Kalamazoo*
De Lyle Warren Peterson	*Ann Arbor*
William Louis Rarden	*Greenville*
George Clayton Richardson	*Tilbury, Ont.*
Clifford Clark Robinson	*Waterport, N. Y.*
Ray Lynn Sexton	*Harbor Springs*
Clayton Frank Bloomfield Stowell	*Mayville*
George Franklin Terry	*Pontiac, Ill.*
James Dean Terry	*Pontiac, Ill.*
Edward George Weeks	*Allegan*
George Conrad Weideman	*West Bay City*
Irving Lovette Wheeler	*Elk Rapids*
Albert Edward Wilson	*Memphis, Tenn.*

SECOND YEAR STUDENTS

NAME	RESIDENCE
Frank Alanson Benedict	*Dowagiac*
Agnes Degen Cloud	*New York, N. Y.*
Clinton Cyrus Davis	*Milford*
William Marshall Dow	*Hamilton, Ont.*
Frank Ellis Dunster, A.B., *Albion College*	*Bad Axe*
William Charles Elsacer	*Niles*
Albert John Hall	*Ann Arbor*
Herbert Hutchinson Harper	*Ypsilanti*
Joseph Scott Hawley	*Ann Arbor*
Clyde Peck Hendricks	*Morrison, Ill.*
Edward Thomas Keating	*Detroit*
Walter Gilbert Kinyon	*Providence, R. I.*
Morris David Mackoy	*Little, Ky.*
Arthur Eugene Ramsdell	*Marlboro, N. Y.*
Ernest Leroy Richmond	*Moosomin, Assiniboia, Can.*
Charles William Ringler	*Big Rapids*
Charles Verne Smith	*Hillsdale*
Claude Bergan Smith	*Geneva, N. Y.*
Ted Ray Southard	*Traverse City*
Edward Cramon Stanton	*Holland*
Leslie Earl Stiles	*Creston, Ia.*
James Hume Taylor	*Flint*
Robert Herman Vollmayer	*Toledo, O.*
William Walton Whipple	*Salamanca, N. Y.*

FIRST YEAR STUDENTS

NAME	RESIDENCE
Elijah Percy Allen	*Detroit*
George Gregor William Andree, B.S., *Columbia University*	*Scottville*
Irwin Charles Ashley	*Ann Arbor*

Edwina Altha Auerswald	*Marinette, Wis.*
Fritz Beyer	*Watervliet, N. Y.*
Senekerim M. Bishop, A.B., *Anatolia College*	*New York, N. Y.*
Charles Lee Bliss	*Plainwell*
Le Grand Clapper	*Battle Creek*
George Clark	*Battle Creek*
Alfonso Frank Cook	*Sequin, Tex.*
William Alfred Cook	*Lawrence*
Herbert Melville Dixon	*Saginaw, West Side*
James Samuel Donaldson	*Mount Clemens*
Le Vant Rolland Drake	*Union City, Pa.*
Isadore Albert Eppstein	*Toledo, O.*
Robert George Fralick	*Bay City*
Murlin Luke Gardner	*Pentwater*
†Julian Elton Gilkey, *a*	*Plainwell*
Gordon Ralph Gix	*Petoskey*
Fred Schorno Granger	*Plainwell*
Roy Wallace Heath	*Plainwell*
Guy Truxell Katner	*Clinton*
Carl Leslie Keyes	*Whitehall*
James Henry Linsley	*Hopkins Station*
Harry Egbert Loeffler	*Ann Arbor*
Leo Angus McMillan	*Gagetown*
Frederic Elliott MacMullen	*Bay City*
Lewis Kempton Mobley	*Ann Arbor*
Farland Tenny Morse	*Ann Arbor*
Mason Terpening Mount	*Lysander, N. Y.*
William John Neelands	*Sandhill, Ont.*
Michael Joseph O'Neill	*Midland*
Frederick Charles Parkins	*Pontiac*
Harvey Carlyle Pollock	*Rocky Ford, Col.*
Max Raabe	*Leadville, Col.*
Michael C. Ruen	*Pinckney*
George Herbert Smith	*Albion*
John Caven Smith	*Morrice*
Alva J. Stamp	*Plainwell*
Clyde Elmo Swain	*Almont*
Mark Edward Thompson	*Midland*
Robert John Vaughn	*Otsego*
Frank Vaughn	*Otsego*
Arend Vyn	*Grand Haven*
Louis Roscoe Weinig	*Tiffin, O.*
William Everet Wilson	*Saint Louis*
Herman Edmund Wright	*Fostoria, O.*

Summer Session of 1904

IN THE DEPARTMENTS OF LITERATURE, SCIENCE, AND THE ARTS, AND OF ENGINEERING; IN THE DEPARTMENT OF MEDICINE AND SURGERY; AND IN THE DEPARTMENT OF LAW

STUDENTS*

DEPARTMENTS OF LITERATURE, SCIENCE, AND THE ARTS, AND OF ENGINEERING

NAME	RESIDENCE
Belle Foster Abell, B.S., *University of Nashville*	*Columbus, Miss.*
Edward LaRue Abell	*Stevensville*
Samuel Black Adams, *e*	*Cincinnati, O.*
Ethel Alice Adams, *a*	*Chicago, Ill.*
Henrietta Elizabeth Allen	*Vicksburg*
Charles Wilkins Ambrose, *a*	*Bay City*
Edward Lowell Anderson, *e*	*Grosse Ile*
William Benton Arbaugh, A.B.	*Ypsilanti*
Belle Arbour	*Grand Junction*
Pearl Katheryn Archer	*Battle Creek*
Louis Ascham, A.B.,	*Canby, Minn.*
Louis Bennett Austin, Ph.B., *Hillsdale College*	*Saginaw, West Side*
Cassius Bruce Avery	*Howell*
Francis Miller Bacon, A.B.	*Indianapolis, Ind.*
Burton Adams Baker, *e*	*Lansing*
Ella May Baldwin, A.M.	*Flint*
Lena Amelia Barber, A.B.	*Adrian*
Carrie Barden, B.S., *Upper Iowa University, g*	*Corvallis, Ore.*
George Albert Barnes, *a*	*Howell*
Charles Wesley Bartrem, *e*	*Ann Arbor*
Albert Bauman	*North Amherst, O.*
Harriet Christina Bedford	*Marlette*

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*Italic letters following a name show that the student is attending the University in the year 1904-1905, and is enrolled in the department indicated: *a*, denoting Department of Literature, Science, and the Arts; *g*, Graduate School; *e*, Department of Engineering; *m*, Department of Medicine and Surgery; *l*, Department of Law; *p*, School of Pharmacy.

Glenn C. Beechler, *l*	*Butler, Ind.*
Roy Beechler, *e*	*Ithaca*
Arthur Emmons Bellis	*Birmingham*
Claude Beltz	*Lewistown, Ill.*
Arthur King Bennett, M.D.	*Watkins, N. Y.*
Daisy Ellen Ben Oliel, *a*	*Ann Arbor*
Henry Wood Berger	*Ann Arbor*
Gerrit Bergmans	*Sneek, Netherlands*
Otto Carter Berry, *e*	*Glendale, O.*
John Wesley Bishop	*Ypsilanti*
Orra Oscar Bishop	*Vicksburg*
Elma Mary Blackman, B.L.	*Kalamazoo*
Bertha Augusta Blanchard	*Greenville*
Walter Irving Bloom	*Detroit*
Ella Mary Bockway	*Springfield, O.*
Luke Connable Bootes, *e*	*Jackson*
Sophus Paul Christian Borresen	*Schenectady, N. Y.*
Edward William Boshart	*Detroit*
Earl Eugene Bovee	*Ithaca*
Alfred William Brandt, *a*	*Indianapolis, Ind.*
Louise Marks Breitenbach, Ph.B.	*Detroit*
Charles Lee Brewster, *l*	*Beatrice, Neb.*
James Irven Bricker, A.M., *Hillsdale College*	*Saginaw, West Side*
Larry Briggs, *a*	*Manton*
Howard Gilbert Brinton, *e*	*Bradford, Pa.*
Joe Richardson Brooks, *e*	*Menominee*
Rena Estella Brown	*Mount Morris*
Charles Morton Brunson, B.S., *Knox College*	*Toledo, O.*
Frank Peyton Buck	*Saint Johns*
Mary Gertrude Buck, *a*	*Paw Paw*
Sara Anna Buckley	*Kalamazoo*
Charles Grant Burgess	*Brighton*
George Samuel Burgess, *a*	*Brighton*
Fred Grenville Burnett, Ph.B., *University of Chicago*	*Kalamazoo*
Frances Ardele Burnham	*Saginaw*
Frank Eugene Burpee, A.M., *Bucknell College*	*Erie, Pa.*
Louis Edward Burton, *e*	*Detroit*
Eli Franklin Bush, *e*	*Hudson*
Howard J. Bush, *a*	*Fenton*
Emma Byerly	*Knightstown, Ind.*
Charles Fuller Campbell, *a*	*Cleveland, O.*
James Allen Canby, A.B., *Bethany College, g*	*Ann Arbor*
Emma Ottilie Carbach	*Cleveland, O.*
Minnie Bertha Carbach	*Cleveland, O.*

Emory Carhart, *e*	*Ann Arbor*
Lelia Jane Carlisle, A.B.	*Shelby*
Frank Everett Carmichael, *m*	*Harrisburg, Pa.*
Augustus Carrier, Ph.G., *Detroit College of Pharmacy, e*	*Detroit*
Clara Etta Carson	*Owosso*
George Miller Carter, *e*	*Jackson*
Isabella Alexandria Cass, *a*	*Ann Arbor*
Earl William Castle	*Saint Johns*
William Sanders Chapin, A.B., *Dartmouth College, m*	*Chelsea, Vt.*
Walter Charles, *e*	*Detroit*
Charles Timothy Chenevert, *e*	*Defiance, O.*
Denis George Clancy, Ph.B., *Hillsdale College*	*Jerome*
Ethelind Clapp	*North Rush, N. Y.*
George Winfred Clark, *e*	*Grand Rapids*
Hosea Clark, A.B., *Cornell University*	*Sodus, N. Y.*
Lilian Evangeline Cleveland, *a*	*Chicago, Ill.*
Joseph Clune, Jr., *e*	*Delray*
Mabel Rebekah Collins, Ph.B., *Albion College*	*Petoskey*
Lulu Coney	*Ionia*
Orville Edward Connor	*Terre Haute, Ind.*
Leon Emory Cook	*Andover, N. Y.*
Mary Elizabeth Cook	*Beaver, Pa.*
Thurlow Emmett Coon, A.B., *e*	*Ann Arbor*
Cornelia Alice Copeland, A.B.	*Dexter*
Janette Elizabeth Corbin, Ph.B., *Oberlin College*	*Union City*
Joseph Henry Corns, A.B.	*Detroit*
Harry Everard Coughlin, *a*	*Big Rapids*
Bessie Myrenda Courtright	*Saginaw*
Mary Belle Cox, A.B.	*Huntington, Ind.*
John Alexander Craig	*Howard City*
Anna Maria Crans, B.S., *Cornell University*	*Dairyland, N. Y.*
Anne Shannon Creveling, *a*	*Bloomsbury, N. J.*
Rebecca Louise Crittenden, *a*	*Mount Clemens*
Belle Honey Croarkin	*Dexter*
Lillian Cope Cummings	*Toledo*
George Herbert Curtis, A.B., *Albion College*	*Gaylord*
Alfred Dachnowski, A.M., *Taylor College, g*	*Ann Arbor*
Harry Hector Dale, *a*	*Butte, Mont.*
Edward Chellis Daoust	*Defiance, O.*
Leo Harvey Darrow, *a*	*Park Ridge, Ill.*
Ethel Mina Davie	*DuBois, Pa.*

Calvin Olin Davis, A.B.	*South Bend, Ind.*
Bessie Elizabeth Day, *a*	*Houston, Tex.*
Francis Alexander DeLisle, *e*	*Delray*
George Franklin De Long	*Three Rivers*
James De Pree, *e*	*Holland*
Eleanor Demmon, *a*	*Ann Arbor*
Rollo William Detwiler, *e*	*Owosso*
Carolyn Hawley Dudley, A.B., *Hillsdale College*	*Hillsdale*
Helen Margaret Dudley	*Morrow, O.*
Sarah Eleanor Dudley, A.B., *Vassar College*	*Poughkeepsie, N. Y.*
Steven Maynard Dudley	*Orland, Ind.*
Mary Ellen Duffy, Ph.B., *g*	*Ann Arbor*
Elizabeth Anne Dugdale	*Goshen, Ind.*
Annie Dinx Dunster, Ph.B.	*Toledo, O.*
Ruth Hancock Dutcher	*Lake City, Minn.*
Charles Fox Dwight	*Augusta*
Mary Lilian Dwyer	*Schenectady, N. Y.*
Gertrude Earhart	*Duluth, Minn.*
Oscar Alfred Eberbach, *e*	*Ann Arbor*
Lucius Walter Elder, *a*	*Ann Arbor*
M. Elizabeth Ellis	*Lansing*
Frances Mary Eschenburg, *a*	*Santa Barbara, Cal.*
Mabel Patterson Falconer	*Charlotte*
Arthur Elisha Farmer	*Pontiac*
Egbert Erven Fell, A.B., *Alma College*	*East Tawas*
Frank Alexander Ferguson	*Niles*
William Andrew Ferguson	*Niles*
Agnes Luella Fessenden	*Romeo*
Helen Louise Finney	*Chicago, Ill.*
John Crocker Fisher, Jr., *a*	*Elmira, N. Y.*
William Henry Foote, *e*	*Chicago, Ill.*
Charlotte Starkweather Fowler, *a*	*New Haven, Conn.*
John Edwin Fox	*Three Rivers*
Ethel Maude Francis	*Frankfort*
Albert Phillip Frapwell, *e*	*Greenland*
Ethel Marie French, *a*	*Ann Arbor*
Alice Marie Frost, *a*	*Norway*
Dorothy Minnie Fuerstenau	*Saginaw*
George Newman Fuller, *a*	*Ann Arbor*
William Henry Fürst, *e*	*Chicago, Ill.*
John Arthur Gamon, *a*	*Wheaton, Ill.*
Fernando Garcinava, *e*	*Purisima, Mex.*
Harry Eben Gardner	*Carson City*
Samuel Elverton Gates	*Hillsboro, Ore.*
Henry Mills Gelston, A.B.	*Bay City*
Caroline Marshall Gessler	*Indiana, Pa.*
John Orpheus Gilbert, *e*	*Medina, N. Y.*

Clara Adele Goheen, *a*	*Saint Joseph, Mo.*
William Sutton Goudy	*Goodrich*
Harry Searls Gradle, *a*	*Chicago, Ill.*
Alexander MacDonald Graver, *e*	*Chicago, Ill.*
Chancey Arthur Graves, *a*	*Ann Arbor*
Loa Green	*Utica*
Clarence Wilson Greene, A.B.	*Albion*
Bertha Mills Gregg	*Racine, Wis.*
Earl Ralph Lamont Gregg	*Racine, Wis.*
Nathan Cesna Grimes	*Franklin, Ind.*
Otto Frederick Grimm, *a*	*Alpena*
Roy Roland Guenther, *p*	*Detroit*
Luis Mauricio Guillermety	*Aguadilla, Porto Rico*
Laurence Hadley, B.S., *Earlham College*	*Danville, Ind.*
Katherine Hall, *a*	*Manistee*
Harry Stevens Hammond, *e*	*Chicago, Ill.*
Charles Ralph Hannan, Jr., *a*	*Boston, Mass.*
Theron Aloin Harmon	*Watervliet*
Flora Radcliffe Harmon	*Watervliet*
Anna May Harper	*Detroit*
Violet Dosia Hart, *a*	*Grand Rapids*
Ella Haubeil	*Detroit*
Bernice Lena Haug, B.S.	*Detroit*
Mabel Rockwood Helman	*Ludlow, Ky.*
Edward Liveus Hendrick	*Saint Joseph*
Herbert Bradley Hendrick, *a*	*Hesperia*
William Hendrie, *e*	*Detroit*
Anna Henry	*Chicago, Ill.*
Alma May Elizabeth Hinkle	*Philadelphia, Pa.*
Mary Amelia Hockenberry, A.B., *Wellesley College*	*California, Pa.*
Lemuel Guy Holbrook, Ph.B.	*Agricultural College*
Mabel Ainslie Holland, Ph.B., *Western Reserve University*	*Sandusky, O.*
Clifford Dyer Holley, M.S., *University of Maine*	*Ubly*
Frances Powell Hooper	*Columbus, Miss.*
Lulu Florence Howard	*Toledo, O.*
Frank William Howe, A.B.	*Charlevoix*
Clara Louise Hughes, Ph.M., *Hillsdale College*	*Saginaw, West Side*
Walter Fred Hunt, A.B., *g*	*Glendale, O.*
Irving Benjamin Hunter, A.M.	*Ypsilanti*
Edith Schutte Hurst, *a*	*Chillicothe, O.*
Gertrude Huselton	*Kansas City, Mo.*
J. Lawrence Huston	*Ann Arbor*
Hiland Sidney Hutchins	*Toledo, O.*
Louis Alton Hutchins	*Coldwater*
Thomas Hutchinson, *a*	*Menominee*

Alonzo Bee Imus, *a*	*Ann Arbor*
Garfield Inwood, A.B., *Olivet College*	*Romeo*
George Leroy Jackson, *a*	*Springville, N. Y.*
Clara Octavia Jameson, A.B., *g*	*Ann Arbor*
Cyril Methodius Jansky	*Ann Arbor*
Mary Jefferson	*Norwalk, O.*
Myron Delos Jerome	*Evart*
Buenaventura Jiminez, *m*	*Aguadilla, Porto Rico*
Lorin Hamlin Jones, *a*	*Union City*
Eber Dunbar Kanaga, *m*	*Charlevoix*
Clyde Fenworth Karshner, *a*	*Big Rapids*
Emma Rosetta Kassebaum, *a*	*Rossville, Kan.*
Charles Glenn Kelley	*Filer City*
Joseph Hubert Kempster, *a*	*Coldwater*
Frank Roy Kepler	*Saginaw, West Side*
Earl Granville Killeen	*Ann Arbor*
Bertha Grace Killen	*Marion, Ind.*
Will Rudolph Kirn, *a*	*Akron, O.*
Caroline Williard Kline	*Indiana, Pa.*
Alma Eunice Knapp	*Detroit*
Frederick Evoy Kneip, *e*	*Ypsilanti*
Clara H. Kramer, *a*	*Cheboygan*
Carrie Krell	*Chelsea*
Henri Clyde Krenerick, *a*	*Ypsilanti*
Mabel Kutz	*Milo, O.*
Ola Mae LaLime	*Malone, N. Y.*
Emma Lamb	*Detroit*
Robert McNeil Lane, *a*	*Toledo, O.*
Sol Beekman Laub	*Natchez, Miss.*
Arthur Elmer Lawrence	*Fort Madison, Ia.*
William Howard Lewis, A.B., *University of Cincinnati*	*Cincinnati, O.*
Charlotte Christine Lloyd	*Olyphant, Pa.*
Henry Charles Lott	*Elk Rapids*
William Arnold Ludwig, B.S.	*Union City*
Herbert Galen Lull, A.B.	*Mount Clemens*
Edgar Lussky, *e*	*Chicago, Ill.*
Fred McAllister, A.B., *Albion College*	*Beloit, Wis.*
Nancie MacArthur, *a*	*Cass City*
Allison Boice McCain	*Kittanning, Pa.*
Charles Walker McClure	*Chicago, Ill.*
Louise Carey McConnell, *a*	*Jackson*
Nelson Ferris Macduff, *a*	*Jackson*
Henry Westermann McKisson, *e*	*Toledo, O.*
Elva Beardsley McNeil	*Ann Arbor*
Benjamin Franklin McWilliams	*Cincinnati, O.*
Mary Katherine Malcomson, *a*	*Detroit*
Willis Edgar Maneval, M.S., *Bucknell College*	*Liberty, Pa.*

Minnie Maude Manley, *a*	*Caro*
Alice Marsh	*Detroit*
Edith Hazel Martin, *a*	*Vermontville*
George Leroy Martin	*Mancelona*
Stephen Codding Mason, Jr.	*Chicago, Ill.*
Ella Anetta Mathews, *a*	*Ann Arbor*
John Edward Mealley, B.S., *Albion College, g*	*Plymouth*
William Henry Meese, *e*	*Michigan City, Ind.*
Emerson Romeo Miller, Phar.M., M.S.	*Auburn, Ala.*
Sidney Romeyn Miller, *a*	*Big Rapids*
Jean Milligan, *a*	*Calumet*
Howard Daniel Minchin, B.S.	*Rochester, N. Y.*
William Van Husan Moore, *e*	*Detroit*
Dennis L. Moore, *a*	*Freedom, N. Y.*
George Bader Morris	*Ann Arbor*
Samuel Ferguson Morris, *a*	*Detroit*
William Albine Morse	*Detroit*
Samuel Moul, A.B., *Ohio Wesleyan University*	*Akron, O.*
Janie Hill Muse	*Bristol, Va.*
Charles Walter Nelson	*Bay City*
Orland Otway Norris	*Troy, O.*
William Boydston North, M.D., *Toledo Medical College, e*	*Toledo, O.*
William Earl North, *a*	*Dryden*
Lucy Salome Norton	*Ann Arbor*
Emily Myers Oberlin, *a*	*Saint Paul, Minn.*
Harriet Teresa O'Dea, *a*	*Detroit*
Mary Catherine Orth	*Harrisburg, Pa.*
Morley Ernest Osborne	*Standish*
Louis Albert Packard, *m*	*Elmira, N. Y.*
Clara Elisabeth Pagenstecher, *a*	*Dayton, O.*
James Kimball Palmer	*Spokane, Wash.*
Anna May Paschke	*Fredonia, N. Y.*
Louia Arch Paschke, *a*	*Fredonia, N. Y.*
Esther Kempton Payne, *m*	*Gloversville, N. Y.*
Edward Graeme Peattie	*Chicago, Ill.*
Milton Percival	*Ann Arbor*
Don Stuart Perry, *e*	*Fayette, O.*
Edith Ellen Pettee	*Detroit*
Ellen Louise Piel, B.L., *Earlham College*, B.L.	*Vincennes, Ind.*
Maud Adelia Priest	*Detroit*
Richard Rider Putnam, B.S.	*Detroit*
Lindley Pyle, A.M.	*Saint Louis, Mo.*
Louis Quarles, *a*	*Milwaukee, Wis.*

Clara Anna Rademacher	*Saginaw*
Thomas Ernest Rankin, A.B.	*Emporia, Kan.*
Nannie Kieth Bean Ransom, A.B., *Vassar College,* A.M., *Albion College*	*Albion*
George Alexander Ray, *e*	*Detroit*
John Edward Redden	*Detroit*
John Albert Redfield, *a*	*Ann Arbor*
Ethel Virginia Reed	*Ann Arbor*
John Oren Reed, Ph.D., *Jena*	*Ann Arbor*
Arturo Reichard, A.B., *Institute of Porto Rico, l*	*Humacao, Porto Rico*
Walton Karthalo Rexford, *a*	*Ypsilanti*
Clara Grace Rhodes	*Galesburg, Ill.*
Helene Rice	*Calumet*
Walter Delmer Riggs	*Clare*
Lorne Stanley Barnet Ritchie, *a*	*Valley City, N. Dak.*
José Rivera	*Pagsanhan, Laguna, P. I.*
Homer Elmer Robbins, *a*	*Ann Arbor*
Norman Meldrum Robertson, A.B.	*Chicago, Ill.*
Charles Chamberlain Root	*Shelby*
Edson Valdy Root	*Bangor*
Lee Thornton Ross	*Belmont, Cal.*
Winifred Isabelle Rudge, *a*	*Port Huron*
Benjamin Russell	*New York, N. Y.*
Roberto G. Sada, *e*	*Monterey, Mex.*
Ebenezer Bradford Sadler	*Sandusky, O.*
Ernst Schmitz, *a*	*Detroit*
John Joseph Schroeffel	*Pittsburg, Pa.*
Louis Joseph Sebille	*Detroit*
Birchard Seighman	*Phoenix*
Dan Klinge Segur, *e*	*Toledo, O.*
Judson Franklin Selleck	*Kalamazoo*
Rufus Clark Shellenbarger, A.B.	*Yankton, S. Dak.*
William Warner Sleator, *a*	*Northville*
Burton Everett Smith	*Grand Rapids*
Clyde Marsh Smith	*Pinckney*
Edna Smith, *a*	*Ann Arbor*
Lora Avery Smith, A.M., *University of Denver*	*Denver, Col.*
Lowell William Smith	*Albion, N. Y.*
Mary Louise Smith, *a*	*Ann Arbor*
Carrie May Sperry, A.M.	*Ann Arbor*
Lavina Spindler, *a*	*Lansing*
Elizabeth Jane Stafford, *a*	*Ann Arbor*
Emily Sumner Stark, *a*	*Ann Arbor*
Helen Fay Stark, *a*	*Ann Arbor*
Richard Mallery Stearns, *e*	*Elgin, Ill.*

Edgar Alfred Steele, B.L., *Albion College*	*Albion*
Harold Steele, B.S., *Albion College*	*South Haven*
Mabelle M. Stewart, *a*	*Hillsdale*
Mallory Napoleon Stickney, *a*	*Lapeer*
Grace Resi Stillman	*Bluffton, Ind.*
Juliet Williston Stockbridge, *a*	*Ann Arbor*
Clara Viola Strain	*Ann Arbor*
Fred Charles Strain, *a*	*Ann Arbor*
Magdalena Stukey, A.B.	*Bryan, O.*
Roscoe Lovejoy Taft, *e*	*Ann Arbor*
Thomas Archer Taper, B.S.	*Lake Linden*
Joseph Luther Thalman, A.B., *Ohio Wesleyan University*	*Owosso*
David William Thomas, A.B.	*Scranton, Pa.*
Maude Ella Thomas	*Ann Arbor*
Josephine Louise Thompson	*Detroit*
Henry Hoag Tibbs, *e*	*Grand Rapids*
Frank Gerow Tompkins	*Parma*
Fred John Sherman Tooze, A.B.	*Monroe*
Ora Travis, A.B., *g*	*Ann Arbor*
Myra Belle True	*Adrian*
Byram Clarkson Trueblood, *e*	*Ann Arbor*
Albert LeRoy Turner, A.B.	*Saline*
Carl Herbert Upmeyer, *e*	*Fort Wayne, Ind.*
May MacDonald Urquhart	*Oakville, Ont.*
Miles Ellsworth Valentine	*Brighton*
Henry J. Van den Berg, *m*	*Zeeland*
Eleanor Van Dorp	*Detroit*
Edward Albert Van Landegend, A.B., *Hope College*	*Holland*
Theodore Casimir Emil Van Manen	*The Hague, Netherlands*
John Albert Van Zoeren, A.B., *Hope College, e*	*Holland*
Joseph Vernor Voorheis, A.B.	*Detroit*
Gertrude Elizabeth von Unwerth	*Kansas City, Mo.*
Ivan Oscar von Zellen, *e*	*Skanee*
Olga Olive von Zellen, *a*	*Skanee*
Theodore Edward Wagner, *a*	*Buffalo, N. Y.*
Guy Leslie Wait, A.B., *g*	*Friendship, N. Y.*
Ida Mary Waldron	*Fort Smith, Ark.*
Zoe Ione Waldron	*Houghton*
John Frederick Wallack, Jr., *e*	*Chicago, Ill.*
Eloise Waring, A.B.	*Tecumseh*
Homer Charles Washburn, Ph.C., B.S.	*Ann Arbor*
Hal C. Weaver, *e*	*Charlotte*
Edwin Oscar Weaver, A.M., *Wittenberg College*	*Springfield, O.*
Florence Webster	*Detroit*

James Erwin Weyant, A.B., *Albion College*	*Dowagiac*
Frank Wilbur Wheaton	*Perry*
Jennie Patterson White, A.M.	*Lansing*
Jesse Elon Whitsit, B.S.	*New York, N. Y.*
Nellie Wilcox, Ph.B.	*Wyandotte*
Clement Laird Wild, Ph.B., *Wooster University*	*Tongaloo, Miss.*
Frederic Wilson Willard, *a*	*Erie, Pa.*
Hobart Hurd Willard, A.B., *g*	*Chicago, Ill.*
Alma Mary Willie	*Hesperia*
Ray Willoughby, A.B.	*Detroit*
Samuel Perry Wilson, *a*	*Atlas*
William Carleton Wilson	*Evanston, Ill.*
Mary Eliza Windsor	*Trenton, N. J.*
Mabel Catherine Elizabeth Wolf	*Gaylord*
Loura Bayne Woodruff, A.B., *g*	*Ann Arbor*
Henry Woog, *l*	*Washington, D. C.*
Erastus Dilworth Wooley, *l*	*Kanab, Utah.*
Francis Ernest Work	*Indiana, Pa.*
Oscar Herman Wurster, *a*	*Ann Arbor*
Pauline Wurster	*Ann Arbor*
Mable Alice Yakeley, *a*	*Lansing*
James Herbert Young, *e*	*Cleveland, O.*
William Emil Zietlow, *e*	*Filer City*
Elizabeth Tabita Zimmerman	*Port Huron*

DEPARTMENT OF MEDICINE AND SURGERY

NAME	RESIDENCE
Ambrosio Aguilar, Ph.C., *a*	*Santiago, Cuba*
Thaddeus Hoyt Ames, *a*	*Kalamazoo*
Robert Hause Beach, *m*	*Pontiac, Ill.*
Frederick Beekel, A.B., *m*	*Elyria, O.*
Clayton Charles Benjamin, *m*	*Ann Arbor*
Gordon Berry, A.B., *Amherst College, m*	*Worcester, Mass.*
Elton Pope Billings, A.B., *m*	*Ann Arbor*
Russell Welford Bunting, D.D.S.	*Ann Arbor*
Leroy William Childs, A.B., *m*	*Ann Arbor*
Otto Charles Christmann, *m*	*Ann Arbor*
Frederick Earl Clark, *m*	*Dansville, N. Y.*
Anna Marion Cooke, *m*	*Evansville, Ind.*
George Henry Crary, *m*	*Saint Olof, Ia.*
David Lewis Dunlap, *m*	*Hopkinton, Ia.*
Norma Bertha Elles, *m*	*Detroit*
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Gamaliel D. Blasier	*Charlotte*
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Montgomery Webster, *l*	*Ionia*
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Charles F. Werner	*Eau Claire, Wis.*
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Floyd E. Winter, *l*	*Greenville*
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Henry Woog, *l*	*Washington, D. C.*

Summary of Students

DEPARTMENT OF LITERATURE, SCIENCE, AND THE ARTS

Resident Graduates	92	
*Candidates for an Advanced Degree, enrolled in the Department of Medicine and Surgery	2	
Undergraduates:		
Candidates for a Degree	1,229	
Not Candidates for a Degree	94—	1,417

DEPARTMENT OF ENGINEERING

Resident Graduates	4	
Graduates Studying *in Absentia*	6	
Undergraduates	983—	993

DEPARTMENT OF MEDICINE AND SURGERY

Resident Graduates	3	
Fourth Year Students	67	
Third Year Students	77	
Second Year Students	90	
First Year Students	138	
Special Student	1—	376

DEPARTMENT OF LAW

Third Year Students	242	
Second Year Students	263	
First Year Students	298	
Special Students	66	
*Students primarily enrolled in other departments	8—	†877

SCHOOL OF PHARMACY

Resident Graduates	11	
Undergraduates	58—	69

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*Counted but once in the Summary by States.

†The total enrollment in the Department of Law, including the Summer Session, is 965; from this number 46 should be deducted for names counted twice, leaving the net total 919, as stated in the Announcement of the department.

HOMOEOPATHIC MEDICAL COLLEGE

Resident Graduate	1	
Fourth Year Students	15	
Third Year Students	19	
Second Year Students	13	
First Year Students	19—	67

COLLEGE OF DENTAL SURGERY

Resident Graduates	19	
Third Year Students	42	
Second Year Students	24	
First Year Students	47—	132
		3,931
Deduct for names counted twice		99
Total, exclusive of Summer Session		3,832

SUMMER SESSION OF 1904

In Department of Literature, Science, and the Arts	398		
In Department of Medicine and Surgery	65		
In Department of Law	88—	551	
†Deduct for students enrolled in 1904-1905 in some department of the University	245		
Deduct for names counted twice	2—	247—	304
Grand total			4,136

†Not included in the Summary by States.

SUMMARY BY STATES AND BY DEPARTMENTS

	Lit. Dept.	Engineering.	Med. and Surg.	Law.	Pharmacy.	Homœopathic.	Dental.	Summer Session.	Total.
Michigan	889	657	188	345	49	30	90	166	*2414
Ohio	106	69	29	74	3	8	6	31	*326
Illinois	104	62	20	98	3	2	4	14	*307
New York	65	63	28	18	2	10	10	15	*211
Indiana	47	17	24	56	1	3	3	12	*163
Pennsylvania	32	30	16	54	2	6	1	17	*158
Iowa	21	11	9	42	1	—	1	2	*87
Missouri	17	5	2	14	2	1	2	3	*46
Wisconsin	12	6	4	17	—	—	1	6	*46
Colorado	11	6	2	7	1	—	3	2	*32
Kansas	11	6	—	10	—	1	—	2	*30
Kentucky	4	1	3	16	2	—	1	2	*29
California	3	4	2	14	—	—	—	3	26
Montana	7	6	3	8	—	1	—	1	26
Minnesota	7	2	4	7	—	—	—	5	*25
Massachusetts	5	5	5	2	—	—	—	—	17
Washington	3	2	3	7	—	—	—	1	16
Utah	4	4	1	5	—	—	—	1	15
District of Columbia	9	3	—	2	—	—	—	—	*14
Nebraska	2	2	1	9	—	—	—	—	14
New Jersey	6	1	2	2	—	—	—	1	12
Texas	4	3	1	2	—	—	1	1	12
North Dakota	2	3	3	3	—	—	—	—	11
Vermont	4	3	1	3	—	—	—	—	11
Idaho	—	—	1	9	—	—	—	—	10
Tennessee	3	1	1	1	1	—	1	2	10
Georgia	2	2	3	2	—	—	—	—	9
Oklahoma	3	1	—	4	—	1	—	—	9
South Dakota	—	—	3	5	—	—	—	1	9
Maine	2	3	—	1	—	2	—	—	8
New Mexico	3	—	—	5	—	—	—	—	*8
Oregon	3	—	—	4	—	—	—	1	8
Arkansas	1	1	—	2	1	—	—	2	7
Connecticut	3	—	1	3	—	—	—	—	7
Mississippi	—	—	—	1	—	—	—	5	6
Porto Rico	—	—	4	1	—	—	—	1	6
Philippine Islands	—	—	1	2	—	—	—	2	5
Virginia	2	—	1	1	—	—	—	1	5
West Virginia	2	—	1	2	—	—	—	—	5
Florida	1	2	1	—	—	—	—	—	4
Wyoming	—	1	1	2	—	—	—	—	4
New Hampshire	—	—	—	3	—	—	—	—	3
Alabama	—	—	1	—	—	—	—	1	2
Indian Territory	—	1	1	—	—	—	—	—	2
Rhode Island	—	—	—	1	—	—	1	—	2
Arizona	—	—	—	1	—	—	—	—	1
Hawaii	—	—	1	—	—	—	—	—	1
Louisiana	1	—	—	—	—	—	—	—	1

*See note at end of table.

Maryland	—	—	—	1	—	—	—	—	1
Nevada	—	—	1	—	—	—	—	—	1
North Carolina	—	—	—	—	1	—	—	—	1
South Carolina	—	—	—	1	—	—	—	—	1
Ontario	4	2	—	1	—	—	6	1	14
Mexico	2	5	—	1	—	—	—	—	8
Japan	4	1	1	—	—	—	—	—	6
Netherlands	1	—	—	—	—	—	—	2	3
Burmah	—	—	—	—	—	2	—	—	2
Argentine Republic	—	1	—	—	—	—	—	—	1
Assiniboia	—	—	—	—	—	—	1	—	1
Bulgaria	—	—	1	—	—	—	—	—	1
Colombia	—	—	1	—	—	—	—	—	1
Cuba	1	—	—	—	—	—	—	—	1
England	—	1	—	—	—	—	—	—	1
Germany	1	—	—	—	—	—	—	—	1
Turkey	1	—	—	—	—	—	—	—	1
Total	1415	993	376	869	69	67	132	304	*4225

*From the figures in the column of totals deduction should be made for duplicates, as follows: Michigan, 49; Ohio, 10; Illinois, 8; Indiana, 7; Wisconsin, 4; Colorado and New Mexico, 2 each; District of Columbia, Iowa, Kansas, Kentucky, Minnesota, New York and Pennsylvania, 1 each; total 89; leaving the net total 4136, as stated on a preceding page.

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Index of University Officers

Abbott, F. M., 23, 349.
Abbott, R. A., 19, 163, 325.
Adams, C. C., 19, 117, 289.
Adams, E. L., 20, 164, 165, 325.
Adams, H. C., 10, 98, 100, 219, 287, 360.
Alger, L. B., 13, 96, 266, 288.
Allen, J. R., 13, 174, 175, 176, 324.
Anderson, H. C., 14, 174, 175, 176, 324.
Angell, J. B., 8, 9, 101, 219, 287, 324, 348, 360, 382, 385, 388.
Armstrong, H. H., 25, 290.
Atchison, R. E., 22.

Bailey, B. F., 19, 176, 177, 270, 325.
Baird, C., 17, 42.
Baker, H. B., 17, 193, 345.
Barbour, L. L., 8, 41.
Barnes, J. M., 25, 325.
Bartlett, G. M., 20, 123, 171, 174, 325.
Bates, H. M., 12, 213, 214, 215, 220, 272, 360.
Beman, W. W., 9, 102, 103, 266, 267, 287.
Bigelow, M. M., 17, 215.
Bigelow, S. L., 14, 106, 107, 128, 167, 191, 230, 288, 348, 360, 382.
Bird, J. P., 20, 164, 165, 269, 325.
Blome, W. H., 16, 229, 231, 268, 382.
Bogle, T. A., 11, 213, 214, 215, 272, 360.
Boucke, E, 15, 76, 77, 78, 79, 288.
Boudeman, D., 18, 215, 360.
Bradshaw, J. W., 21, 102, 103, 165, 289, 325.
Bragg, E. M., 20, 174, 175, 177, 178, 325.
Breakey, J. F., 21, 195, 349.
Breakey, W. F., 15, 195, 348.
Brewster, J. H., 11, 214, 215, 360.
Briggs, J. P., 21.
Brooks, H. E., 19, 289.
Brown, J. A., 23, 325.
Brown, L. A., 25, 290, 382.
Bunker, R. E., 12, 213, 215, 220, 272, 360.
Bunting, R. W., 23, 388.
Burns, G. P., 19, 118, 119, 120, 268, 289.
Bursley, J. A., 20, 174, 175, 325.
Butterfield, E. E., 21, 348.
Butts, W. H., 15, 102, 103, 165, 166, 288, 324.

Campbell, E. D., 12, 106, 107, 108, 111, 167, 168, 169, 231, 288, 324, 382.
Canfield, A. G., 11, 73, 74, 75, 287.
Canfield, R. B., 15, 195, 348.
Carey, H. W., 8.
Carhart, H. S., 9, 104, 105, 166, 233, 287, 324.
Chamberlain, G. L., 18, 345.
Childs, L. W., 24, 345.
Christian, E. A., 17, 345.
Clawson, A. B., 24, 290.
Clayberg, J. B., 17, 215, 360.
Colby, W. F., 26, 104, 290, 325.
Cone, L. H., 23, 269, 289.
Cooley, C. H., 13, 98, 100, 139, 288.
Cooley, M. E., 9, 174, 175, 176, 324.
Cooley, T. B., 14, 348.
Copeland, R. S., 11, 239, 241, 245, 249, 385.
Corwin, E. S., 265.
Cowie, D. M., 21, 194, 271, 349.
Craig, J. A., 11, 70, 71, 72, 73, 287.
Cross, A. L., 15, 89, 90, 91, 265, 288.
Cumming, J. G., 23, 349.
Cushny, A. R., 11, 121, 193, 194, 232, 348.

Dachnowski, A., 23, 290.
Darling, C. G., 15, 194, 348, 388.
Davis, C. A., 19, 120, 121, 289.
Davis, J. B., 10, 172, 173, 324.
Davis, R. C., 9, 101, 287, 324.
Davock, H. P., 18, 215, 360.
Dean, H. S., 8.
Demmler, P. E., 22, 289, 382.
Demmon, I. N., 9. 82, 83, 84, 265, 287.
Denison, C. S., 9, 123, 171, 172, 174, 287, 324.
Dennison, W., 13, 65, 66, 67, 68, 69, 288.
dePont, P. R., 14, 73, 74, 75, 288.
Dewey, W. A., 11, 244, 385.
De Witt, L. M., 19, 122, 192, 271, 348.
Diekhoff, T., 14, 76, 77, 78, 79, 264, 288.
Dieterle, J., 19, 76, 77, 78, 289.
Dock, G., 10, 194, 271, 348.
D'Ooge, M. L., 9, 32, 62, 63, 64, 65, 287.
Dow, E. W., 13, 42, 89, 90, 91, 288.
Drake, J. H., 13, 65, 66, 67, 68, 69, 98, 215, 219, 263, 264, 272, 288, 360.
Dubee, H. W., 20, 163, 164, 325.
Duerden, J. E., 16, 114, 115, 116, 117, 289.

Dunbar, F., 22, 289.
Dunlap, D. L., 24, 349, 388.
Dunlap, F. L., 16, 108, 109, 168, 169, 191, 231, 268, 289, 348, 385.
Duschak, L. H., 22, 268, 289.
Dwyer, J. W., 19, 213, 214, 215, 360.

Eastwood, J. F., 24, 112, 192, 290, 349.
Eberbach, O. A., 25, 290, 382.
Edmunds, C. W., 20, 193, 194, 230, 348, 382.
Edwards, S. F., 26, 111, 192, 290, 349.
Edwards, W. M., 17, 349.
Effinger, J. R., 14, 73, 74, 75. 251, 264, 288.
Eggert, C. E., 16, 76, 77, 78, 289.
Elles, N. B., 24, 349.
Elmer, W. P., 22, 349.
Escott, E. B., 16, 102, 103, 165, 166, 289, 325.

Fairlie, J. A., 14, 92, 288.
Field, P., 16, 102, 103, 165, 166, 289, 325.
Finney, B. A., 17.
Fitzpatrick, K., 13, 288, 324.
Fletcher, F. W., 8.
Florer, W. W., 15, 76, 77, 78, 79, 264, 288.
Fox, J. S., 25, 90, 91, 92, 290.
Frank, C. D., 16, 324.
Frothingham, E. H., 26.
Fulton, M. G., 21, 163, 325.

Georg, C., 21, 194, 349.
Gibson, L. J., 25.
Gilmore, E. S., 22, 205.
Gilpin, J. H., 22.
Glover, J. W., 14, 99, 101, 102, 103, 165, 166, 215, 266, 288, 324, 360.
Goddard, E. C., 12, 212, 213, 215, 223, 272, 360.
Gomberg, M., 13, 106, 108, 109, 111, 167, 168, 169, 198, 231, 268, 288, 324, 348, 382, 388.
Goulding, H. J., 14. 123, 171, 172, 174, 269, 324.
Greene, A. E., 14, 173, 174, 324.
Gregg, M. H., 25, 325.

Hale, W. J., 20, 106, 107, 230, 267, 289, 382.
Hall, A., Jr., 10, 112, 170, 287, 324.
Hall, L. P., 12, 388.
Halliday, J. F., 26, 290.
Hamilton, G. L., 20, 73, 74, 75, 289.
Hargrave, R. W., 21, 175, 325.
Haythorn, S. R., 24, 349.
Hazelton, W. S., 19, 174, 175, 176, 324.
Hempl, G., 11, 77, 79, 80, 81, 82, 83, 287.
Henderson, W. D., 21, 104, 166, 167, 267, 289, 325
Herdman, W. J., 9, 195, 215, 271, 348, 360.
Higbie, H. H., 21, 175, 270, 325.
Higley, G. O., 15, 106, 107, 110, 230, 267, 268, 288.
Hildner, J. A. C., 15, 76, 77, 78, 79, 264, 288.
Hill, A., 8, 129.
Hinsdale, W. B., 11, 241, 244, 385.
Hoff, M. S., 10, 42, 251, 388.
Hogan, E. L., 25, 325.
Hollister, R. D. T., 20, 86, 87, 289, 360.
Holmes, S. J., 16, 114, 115, 116, 117, 289.
Houghton, A. C., 22, 106, 167, 168, 230, 289.
Houghton, E. M., 18, 194, 349.
Howell, R. B., 19, 388.
Huber, H. G., 12, 122, 191, 192, 288, 348, 388, 410.
Hudson, R., 10, 89, 90, 91, 92, 219, 223, 287, 360.
Hulett, G. A., 15, 106, 107, 109, 110, 230, 268, 288.
Hunt, A. L., 19, 123, 171, 172, 289, 325.
Hutchins, H. B., 11, 196, 207, 213, 215, 223, 349, 360.

Ibershoff, A. E., 23, 245, 385.

Jameson, J. F., 18, 90, 290.
Jocelyn, L. P., 410.
Johnson, O. C., 10, 106, 108, 109, 167, 168, 231, 287, 324, 382.
Jones, E. D., 13, 99, 100, 101, 125, 288.
Jordan, F. P., 17.
Jordan, M. B., 17, 289.

Kane, D. M., 24.
Karpinski, L. C., 16, 102, 103, 165, 289, 325.
Kauffman, C. H., 21, 118, 119, 289.
Keeler, C. E., 24, 349.
Kelley, P. H., 8.
Kelsey, F. W., 10, 66, 67, 68, 69, 264, 287.
Kiefer, H., 12, 348.
Kinyon, C. B., 11, 245, 385.
Kirchner, O., 11, 213, 214, 360.
Kirk, R. R., 20, 84, 85, 289.
Kline, A. M., 26, 290.
Klingmann, T., 21, 195, 271, 349.
Knapp, B. S., 26, 290.
Knappen, L. E., 8, 410.
Knowlton, J. C., 10, 212. 213, 272, 349, 360.
Koch, T. W., 18.
Kraus, E. H., 10, 113, 170, 171, 232, 233, 268, 270, 288, 324, 382.

Lane, A. C., 18, 114, 171, 290.
Lane, V. H., 11, 42, 214, 272, 325, 360, 410.
Lange, C. F. A., 19, 76, 77, 78, 289.
Lathrop, O. C., 26, 325.
Lawton, C. D., 8.
Levi, M., 13, 73, 74, 75, 264, 288.

Levy, D. J., 23, 111, 192, 271, 290, 349.
Lichty, D. M., 15, 288, 382, 388.
Lloyd, A. H., 13, 93, 94, 95, 96, 133, 223, 265, 266, 288.
Loeffler, E. T., 12, 388.
Lombard, W. P., 10, 121, 193, 232, 287, 348.
Long, C. P., 25, 290, 382.
Long, O. R., 17, 244, 385.
Loomis, A., 21, 174, 175, 325.
Loree, I. D., 22, 194, 349.
Lown, H. L., 25.
Lucas, E. E., 22.
Lyman, W. R., 26, 349.

Macduff, N. F., 25, 290.
McGee, H. S., 25, 349.
McLaughlin, A. C., 10, 18, 89, 287, 290.
McMurrich, J. P., 11, 122, 191, 192, 287, 348.
McNally, W. D., 23, 290.
March, H. W., 22, 289, 325.
Markley, J. L., 13, 102, 103, 165, 166, 266, 267, 288, 324.
Mars, J. D., 24.
Marsh, F. B., 23, 290.
Marshall, W., 16, 102, 103, 165, 166, 266, 289, 290, 325.
Marshall, W. J., 24.
May, G. A., 17, 269.
Meader, C. L., 15, 65, 66, 67, 68, 69, 70, 263, 288.
Mellencamp, F. J., 25, 104, 166, 290, 325, 349.
Menger, F. J., Jr., 21, 163, 164, 325.
Merrick, H. B., 20, 172, 173, 270, 325.
Miggett, W. L., 14, 172, 174, 175, 270, 324.
Morehouse, L. F., 16, 104, 105, 166, 177, 270, 289, 325.
Moriarty, W. D., 25, 85, 86, 290.
Morrill, C. B., 19, 84, 85, 86, 265, 289.
Morris, R. S., 20, 194, 348.
Munson, J. D., 17, 349.
Munson, J. F., 24, 112, 192, 349.
Murphey, H. B., 21, 123, 171, 325.

Nancrede, C. B., 10, 194, 271, 348.
Newcombe, F. C., 13, 118, 119, 120, 230, 288.
Nichols, M. C., 25, 325.
Nims, B., 23, 112, 193, 271, 290, 349.
Novy, F. G., 12, 111, 112, 192, 193, 232, 288, 348, 388.

Parker, W. R., 15, 195, 348.
Parnall, C. G., 24, 349.
Parsons, C. C., 18, 101, 290.
Pater, C. J., 24, 290.
Pattengill, A. H., 9, 42, 63, 64, 287.
Patterson, G. W., 13, 104, 105, 167, 176, 177, 288, 324.
Patton, C. L., 22, 195, 349.
Payne, W. H., 11, 96, 97, 288.
Pearl, R., 16, 115, 116, 117, 289.
Peck, R. R., 19, 73, 74, 75, 164, 165, 289, 325.
Peterson, R., 12, 195, 271, 348.
Pettis, J. H., 24, 349.
Pierce, A. B., 16, 102, 103, 165, 166, 289, 324.
Pillsbury, W. B., 14, 93, 94, 95, 96, 195, 288, 349.
Polglase, W. A., 17, 244, 385.
Pollock, J. B., 15, 114, 118, 119, 120, 268, 288.
Prescott, A. B., 9, 107, 109, 128, 191, 231, 232, 287, 324, 348, 382.
Preston, J. F., 26, 290.

Randall, H. M., 16, 104, 105, 166, 267, 289, 324.
Rebec, G., 13, 93, 94, 95, 96, 265, 266, 288.
Reed, F. F., 17, 215, 360.
Reed, J. O., 13, 103, 104, 105, 191, 251, 267, 288, 324, 348.
Reeve, H., 17.
Reeves, W. T., 18, 388.
Reighard, J., 10, 115, 116, 117, 287.
Richards, R. M., 18, 385.
Roberts, G. W., 18, 385.
Rood, J. R., 15, 212, 213, 360.
Rosenberry, B. P., 24.
Roth, A. H. H., 20, 122, 191, 288, 348.
Roth, F., 12, 120, 121, 288.
Running, T. R., 16, 102, 103, 165, 166, 289, 325.
Russell, I. C., 10, 113, 114, 171, 287, 324.
Ryder, E. H., 23, 290.

Sadler, H. C., 13, 42, 177, 178, 324.
Sage, F. L., 13, 213, 214, 215, 220, 272, 360.
Sanders, H. A., 14, 64, 65, 66, 67, 68, 69, 288.
Schlotterbeck, J. O., 13, 110, 119, 230, 231, 288, 382.
Scholl, J. W., 19, 76, 77, 163, 164, 289, 325.
Scott, F. N., 12, 84, 85, 86, 288, 324, 410.
Scott, S. F., 23, 290, 382.
Severance, H. O., 17.
Shaw, W. B., 410.
Shepard, J. F., 23, 93, 94, 95, 96, 290.
Slocum, G., 26, 195, 349.
Smalley, H. S., 20, 98, 99, 100, 101, 289.
Smeaton, W. G., 19, 108, 111, 167, 168, 169, 170, 267, 268, 325.
Smith, A. W., 16, 104, 105, 166, 167, 267, 289, 324.
Smith, B. G., 25, 290.
Smith, D. T., 12, 244, 385.
Solis, J. C., 21, 195, 271, 349.
Soule, H., 8.
Spalding, E. B., 18, 388.
Stanley, A. A., 10, 45, 88, 287.

Stein, G., 20, 214, 215, 360.
Stevens, A. B., 14, 382.
Stevens, R. H., 18, 385.
Strauss, L. A., 14, 82, 83, 265, 288.
Stripp, A. E., 24.
Stroebe, G. G., 21, 123, 171, 325.
Stuart, B. S., 22.
Stuart, D. R., 16, 63, 64, 65, 67, 263, 289.
Sunderland, E. R., 15, 214, 215, 360.
Swan, H. H., 17, 215, 360.

Tarbox, C. C., 19, 163, 269, 325.
Tatlock, J. S. P., 15, 82, 83, 288.
Taylor, F. M., 12, 98, 100, 223, 266, 288.
Teetzel, C. T., 17.
Tenney, C. F., Jr., 24, 349.
Thieme, H. P., 16, 73, 74, 75, 289.
Thomas, J. M., 16, 84, 85, 265, 289.
Thompson, B. M., 10, 214, 215, 360.
Tilden, C. J., 21, 173, 174, 269, 325.
Tracy, I. M., 22.
Travis, O., 25, 290.
Trueblood, T. C., 10, 87, 88, 218, 265, 287, 360.
Turner, F. J., 18, 89, 290.

Urie, D. C., 24.

Van Tyne, C. H., 18, 89, 90, 91, 219, 288.
Vaughan, V. C., 9, 112, 128, 187, 192, 193, 196, 215, 287, 348, 360.
Vibbert, C. B., 23, 93, 94, 96, 290.

Wade, J. H., 8, 125, 133, 261.
Wagner, C. P., 20, 73, 74, 76, 289.
Wahl, F. G., 25.
Wait, W. H., 14, 164, 269, 324.
Waldron, F. R., 22, 194, 349.
Walker, A. H., 17, 215, 360.
Ward, M. L., 20, 388.
Warthin, A. S., 12, 193, 271, 348.
Watson, M. T., 18, 388.
Weckel, A. L., 23, 290.
Wenley, R. M., 11, 93, 94, 95, 96, 287.
Wheeler, S. M., 25, 349.
White, A. H., 14, 108, 110, 168, 169, 270, 288, 324.
White, P., 8, 127.
Whitman, E. L., 20, 388.
Whitney, A. S., 12, 96, 97, 266, 288.
Whitsit, L. A., 25, 325.
Wiggers, C. J., 23, 349.
Wilbur, C. L., 18, 193, 349.
Wilcox, C. R., 24.
Wilgus, H. L., 11, 213, 214, 360.
Willard, F. W., 23, 290.
Willard, H. H., 22, 106, 108, 109, 167, 168, 231, 289, 325, 382.
Willey, V. J., 19, 195, 271, 348.
Williams, G. S., 13, 173, 174, 324.
Wilson, F. C., 16, 123, 171, 172, 173, 174, 269, 324.
Winkler, M., 12, 76, 77, 78, 79, 288.
Winter, J. G., 26, 290.
Wood, N. A., 21.
Woodard, G. E., 22.
Woodson, M., 22.
Wrentmore, C. G., 14, 173, 174, 324.
Wurster, O. H., 23, 290.

Yutzy, S. M., 15, 122, 191, 348, 388.

Ziefle, A., 25, 229, 231, 382.
Ziwet, A., 12, 102, 103, 165, 166, 288, 324.

General Index

Academic Year, 6.
Accounting, Instruction in, 233.
Adams-Jewett Collection, 33.
Administrative Law, Instruction in, 69, 92, 125.
Admiralty Law, Instruction in, 215.
Admission Conditions, Rules Concerning, 57, 145, 188, 189, 240.
Admission, Requirements for, in—
  College of Dental Surgery, 251.
  Department of Engineering, 140.
  Department of Law, 208.
  Department of Literature, Science, and the Arts. 49.
  Department of Medicine and Surgery, 187.
  Graduate School, 133.
  Homœopathic Medical College, 239.
  School of Pharmacy, 226.
  Summer Session, 261.
Advanced Standing, Admission to, 58, 142, 190, 210. 227, 240, 253.
Aesthetics, Instruction in, 94.
Algebra, Requirement for Admission, 50, 52, 141, 188, 209, 227, 240, 252.
Alger Medals, 45.
Alumni Association, Officers of, 410.
Alumni Day, 6.
Ames Herbarium, 33.
Anatomical Laboratory, 199.
Anatomical Museum, 199.
Anatomy, Instruction in, 122, 191, 192, 245, 254.
Angell, Sarah Caswell, Hall, 41.
Anglo-Saxon, Instruction in, 80, 81, 82.
Annual Fee, 47, 48.
Annuities, Theory of, 99, 101, 102, 103, 215.
Arabic, Instruction in, 71.
Aramaic, Instruction in, 71.
Archæology, Instruction in, 65, 66, 67.
Arithmetic, Requirement for Admission, 227, 239. 252.
Art Collection, 32.
Assyrian, Instruction in, 70.
Astronomy, Instruction in, 112, 150, 170.
Astronomy, Requirement for Admission, 142, 209, 227.
Athens School of Classical Studies, 62.
Athletic Grounds, 41.
Athletic Grounds, 41.
Athletics, Instruction in, 124.
Athletics, Requirements in, 41, 124.
Athletics, Supervision of, 42.

Bachelor of Arts, Degree of, 28, 60.
Bachelor of Laws, Degree of, 28, 220.
Bachelor of Science, Degree of, 28, 180, 236.
Bacteriological Laboratory, 202.
Bacteriology, Instruction in, 111, 193, 197, 232, 235, 245, 255, 271.
Bagley Collection, 33.
Baldwin Lectureship, 40.
Barbour Gymnasium, 41.
Beal-Steere Collections, 32, 33.
Bibliography, Instruction in, 101.
Biology, Instruction in, 114.
Biology, Requirement for Admission, 50, 56, 189.
Blacksmith Shop, 151, 156.
Board, Cost of, 48.
Board of Control of Athletics, 42.
Board of Regents, 8, 27.
Bookkeeping, Requirement for Admission, 227.
Botanical Collection, 33.
Botanical Garden, 237.
Botanical Laboratory, 37.
Botany, Instruction in, 117, 230, 268.
Botany, Requirement for Admission, 50, 55, 142, 189, 209, 227, 240, 252.
Buhl Classical Fellowship, 127.
Buhl Law Library, 209.

Carhartt Testimonal, 44.
Carpentry, Instruction in, 149, 156, 172.
Central Debating League, 43.
Certificate, Admission on—See Diploma.
Certificates of Attendance, 221.
Chemical Engineer, Degree of, 28, 184.
Chemical Engineering, 153, 182.
Chemical Laboratory, 36, 200.
Chemistry, Fellowship in, 128, 237.
Chemistry, Instruction in, 105, 111, 148, 153, 167, 191, 192, 198, 230, 245, 253, 255.
Chemistry, Museum of, 34.
Chemistry, Requirement for Admission, 50, 55, 142, 189, 209, 223, 252.
Chicago Alumni Medal, 43.
Children, Diseases of, 194, 243.
Chinese Collection, 32.
Choral Union, 45.
Christian Associations, 40, 41.
Churches in Ann Arbor, 40.
Civil Authorities, Relation of Students to, 46.
Civil Engineer, Degree of, 28, 184.

Civil Engineering, 123, 173, 181, 269.
Civil Government, Requirement for Admission, 209, 227.
Class Days, 6.
Classical Fellowships, 127.
Classification of Students, 211.
Class Scholarships, 131.
Clinical Instruction, 194, 195, 204, 244, 245, 246, 248.
Club Courts, 222.
Clubs, Boarding, 48.
College of Dental Surgery, 251, 388.
Combined Literary and Law Course, 124, 209, 223.
Combined Literary and Medical Course, 124, 196, 241.
Commencement, Date of, 6.
Commerce, Instruction in, 97.
Commercial Education, 125.
Conditions, Rules relating to, 57, 61, 163, 188, 189, 227.
Constitutional History, Instruction in, 89, 90, 91, 219, 223.
Constitutional Law, Instruction in, 92, 214, 220.
Contracts, Law of, 212, 213, 272.
Conveyancing, Instruction in, 214, 215, 217.
Copyright Law, Instruction in, 215.
Courses of Instruction, 62, 134, 161, 190, 212, 219, 229, 236, 241, 246, 253, 257, 262.
Coyl Bequest, 29.
Credit, Hour of, 229.
Cup Debate, 44.
Custer Collection 31.

Debating League, 44.
De Criscio Collection, 33.
Degrees Conferred in 1904, 275.
Degrees, Requirements for, in—
  College of Dental Surgery, 257.
  Department of Engineering, 180, 182, 184.
  Department of Law, 220.
  Department of Literature, Science, and the Arts, 60.
  Department of Medicine and Surgery, 197.
  Graduate School, 135.
  Homœopathic Medical College, 246.
  School of Pharmacy, 236.
Degrees, Rules Concerning, 137.
Demonstration Courses, 48.
Dental Laboratory, 258.
Dental Library, 29.
Dental Museum, 258.
Dental Surgery, College of, 251, 388.
Dentistry, Instruction in, 253, 254, 255, 256.
Department of Engineering, 139, 269, 273, 324, 392.
Department of Law, 207, 271, 274, 360, 403.
Department of Literature, Science, and the Arts, 49, 263, 273, 287, 392.
Department of Medicine and Surgery, 187, 271, 273, 348, 401.
De Pue Collection, 32.
Dermatology, Instruction in, 195.
Descriptive Geometry, Instruction in, 123, 171, 269.
Detroit High School Scholarships, 129.
Diagnosis, Instruction in, 242, 244.
Diploma, Admission on, 57, 145, 188, 208, 227, 239, 251.
Diploma Fee—See Expenses.
Discipline, 46.
Dispensary Instruction, 196.
Doctor of Dental Science, Degree of, 28, 257.
Doctor of Dental Surgery, Degree of, 28, 257.
Doctor of Medicine, Degree of, 28, 197, 246.
Doctor of Philosophy, Degree of, 28, 135.
Doctor of Science, Degree of, 28, 135.
Dorsch Library, 28.
Douglass Library, 222.
Drawing, Instruction in, 123, 148, 171, 269.
Drawing Room, 156.

Election of Studies, 60, 162, 235.
Electrical Engineer, Degree of, 28, 184.
Electrical Engineering, 123, 152, 153, 176, 182, 270.
Electrical Engineering Laboratory, 159.
Electric Light Plant, 159.
Electrotherapeutical Laboratory, 200.
Electrotherapeutics, 195, 197.
Elocution, Instruction in, 86, 218, 265.
Embryology, Instruction in, 191, 245.
Engineering, Chemical, 123, 153, 182.
Engineering, Civil, 123, 173, 181, 269.
Engineering, Department of, 139, 269, 273, 324, 392.
Engineering, Electrical, 123, 152, 153, 176, 182, 270.
Engineering, Marine, 123, 154, 177, 182.
Engineering, Mechanical, 123, 151, 174, 181, 270.
Engineering Shops, 156.
Engineering Society, 161.
English, Instruction in, 80, 81, 147, 163, 265, 269.
English, Requirement for Admission, 50, 59, 140, 188, 209, 227, 239, 251
Equity, Instruction in, 213, 214, 215, 272.
Ethics, Instruction in, 94, 95, 265.
Ethiopic, Instruction in, 71.
Examination, Fee for, 48, 132, 144, 185.
Examinations for Admission, Places and Times of, in—
  College of Dental Surgery, 6, 252.
  Department of Engineering, 6. 144.

  Department of Law, 6, 211.
  Department of Literature, Science, and the Arts, 6, 56, 57.
  Department of Medicine and Surgery, 6, 190.
  Homœopathic Medical College, 6, 240.
  School of Pharmacy, 6, 228.
Examinations, Rules Concerning, 61, 155, 196, 216, 233, 245, 256, 223.
Expenses, 47, 132, 138, 185, 206, 224, 238, 249, 260, 262.

Faculties, Members of, 9.
Faculty of the—
  College of Dental Surgery, 388.
  Department of Engineering, 324.
  Department of Law, 360.
  Department of Literature, Science, and the Arts, 287.
  Department of Medicine and Surgery, 348.
  Homœopathic Medical College, 385.
  School of Pharmacy, 382.
Fees—See Expenses.
Felch Library, 29.
Fellowships, 127, 185, 237.
Ferry Fellowship, 128.
Ferry Field, 42.
Ferry Testimonial, 44.
Foley Guild, 41.
Ford-Messer Bequest, 29.
Forestry, Instruction in, 120.
Forestry Laboratory, 39.
Forge Shop and Forging, 149, 156,172, 270.

Foundry, 149, 156, 172, 270.
French, Instruction in, 73, 147, 164, 264, 269.
French, Reqquirement for Admission, 50, 53, 141, 189, 227.
Frieze Memorial Organ, 45.
Fritchey Collection, 33.

Garrigues Collection, 33.
Gas Engines, 152, 175.
Gas Fellowship, 185.
Geodesy, Instruction in, 150, 173.
Geography, Requirement for Admissison, 209.
Geological Collection, 30.
Geological Laboratory, 37.
Geology, Instruction in, 113, 151, 171.
Geology, Requirement for Admission, 209, 227.
Geometry, Requirement for Admission, 50, 52, 141, 188, 209. 227, 240, 252.
German, Instruction in, 76.
German, Requirement for Admission, 50, 54, 141, 189, 227.
Goethe Library, 28.
Good Government Club Prize, 132.
Gothic, Instruction in, 79.
Government, Instruction in, 88.
Graduate Courses in—
  College of Dental Surgery, 257.
  Department of Engineering, 183.
  Department of Law, 211, 219.
  Department of Literature, Science, and the Arts—See Graduate School.
  Department of Medicine and Surgery, 197, 206.
  Homœopathic Medical College, 246.
  School of Pharmacy, 236.
Graduate School, 49, 133.
Graduates of 1904, 275.
Graduation Requirements for—See Degrees.
Grand Rapids High School Scholarships, 130.
Graphics, Instruction in, 151, 173, 269.
Greek, Instruction in, 62, 72, 263.
Greek, Requirement for Admission, 50, 52, 263.
Gymnasiums, 41, 48, 124.
Gynæcology, Instruction in, 195, 242, 245, 271.

Hagerman Collection, 28.
Hamilton Contest, 43.
Harrington Collection, 33.
Harris Hall, 40.
Harrison Scholarships, 130.
Hebrew, Instruction in, 70.
Hellenistic Greek, Instruction in, 72.
Hench Library, 29.
Herbaria, 33.
Highway Construction, Instruction in, 150.
Histological Laboratory, 201.
Histology, Instruction in, 122, 191, 198, 245, 271.
Historical Collection, 32.
History, Instruction in, 88, 265.
History, Requirement for Admission, 50, 54, 142, 188, 209, 227, 240, 252.
Hobart Guild, 40.
Homœopathic Hospital, 40, 248.
Homœopathic Library, 29, 247.
Homœopathic Medical College, 239, 385.
Honorary Degrees, 286.
Hospitals, 40, 204. 248.
Houghton Herbarium, 33.
Hour of Credit, 229, 295, 326, 383.
Hunt Fellowships, 128.
Hunt Scholarship, 131.
Hydraulics, Instruction in, 151, 173.
Hygiene, Instruction in, 111, 193, 197, 245.
Hygienic Laboratory, 202.
Industrial Chemistry, Instruction in, 198, 110, 153, 168, 169.

Industrial Chemistry Collection, 34.
Inland League, 41.
Insurance, Instruction in, 99, 101, 102, 103, 266.
Insurance, Law of, 215.

International Law, Instruction in, 101, 214, 219.
Irrigation Law, 215.
Italian, Instruction in, 75, 264.

Jeffersonian Society, 222.
Jewett Collection, 33.
Jurisprudence, Instruction in, 213, 214, 215.

Laboratories, 35, 155, 199, 247, 258.
Laboratory Expenses, 48, 185, 206, 238, 249, 260.
Laryngology, Instruction in, 195, 243, 245.
Latin, Instruction in, 65, 263.
Latin, Requirement for Admission, 50, 52, 141, 189, 227, 240, 232.
Law, Department of, 207, 271, 274, 360, 403.
Law, Instruction in, 212, 271.
Law Library, 29, 221.
Law, Reading of, 209.
Law, Summer Session, 271, 274, 403.
Lecture Association, 45.
Lectures on Special Subjects, 17, 246.
Lederer Collection, 39.
Lewis Gallery, 33.
Libraries, 28, 203, 221, 237, 247, 258.
Linguistics, Instruction in, 69, 80.
Literary Department, 49, 263, 273, 283, 392.
Loan Funds, 127.
Logic, Instruction in, 93, 95.
Loud Lectureship, 41.
Lowden Testimonials, 43.

Machine Design, 151, 153, 174.
Machine Shop, 149, 156, 172, 270.
McMillan Hall, 40.
McMillan Shakespeare Library, 28.
Marine Engineer, Degree of, 28, 184.
Marine Engineering, 123, 154, 177, 182.
Master of Arts, Degree of, 28, 135, 223.
Master of Laws, Degree of, 28, 221.
Master of Science, Degree of, 28, 135, 183, 223, 237.
Materia Medica, Instruction in, 230, 241, 244, 255.
Materia Medica, Museum of, 200.
Mathematics, Instruction in, 101, 148, 165, 266.
Mathematics, Requirement for Admission, 50, 52, 141, 188, 209, 227, 239, 252.
Matriculation Fee—See Expenses.
Mechanical Engineer Degree of, 28, 184.
Mechanical Engineering, 123, 151, 174, 181, 270.
Mechanical Engineering Laboratory, 157.
Medical Building, 205.
Medical Jurisprudence, 196, 215, 245.
Medical Library, 29, 203.
Medicine and Surgery, Department of, 187, 271, 273, 348, 401.
Medicine, Instruction in, 194, 242, 271.
Medicine, Summer Session, 271, 273, 401.
Medicine, Theory and Practice of, 242, 244.
Mental Diseases, 195, 243, 244, 271.
Metallurgy, Instruction in, 111, 152, 169, 270.
Metaphysics, Instruction in, 94, 95.
Mineralogical Collection, 30.
Mineralogy, Instruction in, 113, 151, 170, 270.
Mining Law, Instruction in, 215.
Moral Culture, Aids to, 40.
Morris Library, 28.
Municipal Engineering, 150.
Museums, 30, 199, 200, 204, 247, 258.
Music, Instruction in, 88.
Musical Society, 45.

Natural History, Museum of, 30.
Naval Architect, Degree of, 28, 184.
Naval Architecture, Instruction in, 153, 177.
Nervous Diseases, 195, 198, 205, 243, 244, 271.
Newberry Classical Fellowship, 127.
Newberry Hall, 40.
Non-Resident Instructors and Lecturers, 17.
Non-Resident Students, 135, 184, 185.
Northern Oratorical League, 43.
Nurses, Training School for, 205, 249.

Observatory, Astronomical, 30.
Obstetrics, Instruction in, 195, 204, 242, 245.
Ophthalmology, Instruction in, 195, 243, 245.
Oratorical Associations, 42.
Oratory, Instruction in, 86, 218, 265.
Organization of the University, 27.
Otology, Instruction in, 195, 243, 245.

Parke, Davis & Co. Fellowship, 128.
Parsons Library, 28.
Partnership, Law of, 214, 272.
Pasteur Institute, 202.
Patent Law, Instruction in, 215.
Pathogenetic Laboratory, 247.
Pathological Laboratory, 201.
Pathology, Instruction in, 193, 198, 244, 245, 271.
Pattern Shop, 156.
Patterson Collection, 31.
Pedagogy—See Teaching.
Perry Scholarship Fund, 130.
Pharmaceutical Chemist, Degree of, 28, 234, 236.
Pharmacognosy, Instruction in, 230, 268.
Pharmacognosy Collection, 34.
Pharmacological Laboratory, 201.

Pharmacology, Instruction in, 121, 193, 198, 232, 236, 242.
Pharmacy, Instruction in, 229, 242, 244, 268.
Pharmacy, School of, 225, 382.
Phillips Scholarships, 128.
Philosophy, Instruction in, 92, 265.
Physical Geography, Requirement for Admission, 142, 209, 240, 252.
Physical Laboratory, 35.
Physical Training, 124, 269.
Physics, Instruction in, 103, 148, 166, 191, 233, 245, 267.
Physics, Requirement for Admission, 50, 52, 142, 189, 209, 227, 240, 252.
Physiography, Requirement for Admission, 50. 55, 227.
Physiological Chemistry, Instruction in, 111, 192, 232, 236, 245, 271.
Physiological Laboratory, 200.
Physiology, Instruction in, 121, 193, 198, 232, 245, 255.
Physiology, Requirement for Admission, 227, 252.
Political Economy, Instruction in, 97, 266.
Practice Court, 214, 215, 216.
Prime Movers, 151.
Prizes, 127.
Psychological Laboratory, 38.
Psychology, Instruction in, 94, 95, 96, 265.
Psychopathic Ward, 205.

Railroad Engineering, 149.
Rathbone Scholarship, 129.
Regents, Board of, 8, 27.
Religious Culture, Aids to, 40.
Religious Union, 41.
Research, 233.
Rhetoric, Instruction in, 84, 265.
Rhetoric, Requirement for Admission, 51, 188, 209.
Rhinology, Instruction in, 195.
Richards Collection of Coins, 33.
Rockefeller Fellowship, 128.
Rogers Gallery, 33.
Roman Law, Instruction in, 66, 68, 69, 216, 219.
Rominger Collection, 30.
Rules and Regulations, 60, 137, 162, 163, 227.

Sackett Hall, 40.
Sager Herbarium, 33.
Saginaw Forest Farm, 39.
Saginaw High School Scholarships, 129.
Sanskrit, Instruction in, 69.
Scandinavian, Instruction in, 79.
Scholarships, 127.
School of Music, 45.
School of Pharmacy, 225, 382.
Semitic History, Instruction in, 71.
Semitic Literature, Instruction in, 71.
Senate, University, 28.
Seth Harrison Scholarships, 130.
Shakespeare Library, 28.
Shop Work, 149, 172, 270.
Six-Year Course in Literary and Medical Studies, 124, 196, 241.
Slocum Lectureship, 40.
Smithsonian Deposits, 31.
Societies, 44, 45, 46, 161, 222.
Sociology, Instruction in, 97.
Spanish, Instruction in, 76, 147, 165, 264.
Special Students, Admission of, in—
  Department of Engineering, 146.
  Department of Law, 211.
  Department of Literature, Science, and the Arts, 59.
  School of Pharmacy, 228.
Statistical Laboratory, 39.
Steam Engineering, 152, 174.
Stearns Collection, 29, 32.
Stearns Fellowship, 237.
Steere Collections, 31.
Stereotomy, Instruction in, 171.
Stevens Facsimiles, 28.
Stone Scholarship, 129.
Structures, Theory of, 150.
Students, Catalogue of, in—
  College of Dental Surgery, 388.
  Department of Engineering, 326, 392.
  Department of Law, 361, 403.
  Department of Literature, Science, and the Arts, 291, 392.
  Department of Medicine and Surgery, 350, 401.
  Homœopathic Medical College, 385.
  School of Pharmacy, 382.
  Summer Session, 392.
Students' Christian Association, 40.
Students' Lecture Association, 45, 131.
Students' Oratorical Association, 42.
Summary by States, 408.
Summary by Students, 406.
Summer Session, 28, 48, 261, 392.
Sumner Society, 222.
Surgery, Instruction in, 194, 241, 244, 255, 256, 271.
Surveying, Instruction in, 123, 149, 172, 270.
Syphilology, Instruction in, 195.
Syriac, Instruction in, 71.

Taft Library, 29.
Tank, Experimental, 160.
Tappan Presbyterian Association, 40.
Teachers' Appointment Committee, 127.
Teachers' Certificate, 126, 127.
Teachers' Diploma, 126.
Teaching, Science and Art of, 96, 266.
Therapeutics, Instruction in, 193, 230, 241, 255.
Thermodynamics, Instruction in, 152, 174.
Theses, Rules relating to, 137, 220.
Torts, 201, 257.

Toxicology, Instruction in, 196, 232.
Training School for Nurses, 205, 249.
Trigonometry, Requirement for Admission, 141, 188.

University Hospital, 40, 204, 248.
University Musical Society. 45.
University Senate, 28.

Van Der Veer Loan Fund, 132.

Walter Library, 29.
Waterman Gymnasium, 41.
Webster Society, 222.
Wesleyan Guild, 41.
White Collection of Medallions, 33.
White Fellowship, 127.
White Geological Collection, 30.
Whittier Collection. 34.
Whittier Fellowship, 128.
Winchell Collection, 31.
Wisconsin-Michigan Debate, 44.
Women, Admission of, 27, 188, 196, 239, 245.
Woodwork, Instruction in, 149, 172, 270.

Young Men's Christian Association, 40.
Young People's Religious Union, 41.
Young Women's Christian Association, 40.

Zoological Collection, 31.
Zoological Laboratory, 37.
Zoology, Instruction in, 115.
Zoology, Requirement for Admission, 50, 55, 189, 227, 240, 250.